Table of Contents

Index to Advertisers

The Modern Package Requires A Design Engineer

By William A. Smith

THE MODERN PACKAGE today plays a more important part in the success of a product than at any time in its history, and it will continue to increase its power of identification and distinctiveness.

The new power of sales stimulant is to display the product so that the consumer will see it when he passes by. Retail merchandising is no longer in that period where products are kept on shelves or behind the counter; they are placed out in front where everyone may see them. Displaying a product out in front has stimulated many sales which would have otherwise failed. The redesigning of the interiors of stores for the purpose of displaying merchandise is receiving the consideration of many merchants.

If we go back just a few years and see the transformation that has taken place in the retail store we begin to realize more clearly that the common saying "goods well displayed are half sold" is not only true but statistics have proven it to be a fact. It was not until the inauguration of the chain store that package appearance played a prominent part in the sales promotion program of a product. Then science was employed in displayology and it was found that this method actually increased sales.

Today we are in the second stage of this important part in our selling program. In the first stage a product was purchased by the dealer in bulk form—in barrels, sacks, wooden boxes, etc.—and then sold to the consumer in paper bags in the quantities required. Today the dealer receives the products in package form. The grocer has syrup and molasses in bottles or cans, sugar in cartons, flour in convenient packages and so on throughout his entire line of merchandise. All products are conveniently packaged for the benefit of the dealer and the consumer. What is true of the grocer is likewise true of the druggist, the candy merchant, the hardware merchant and all other dealers including the large department stores. We are living in a package age.

The third stage, I believe, will be a period of *intensified telling* of a product. Today the consumer selects what he chooses. Tomorrow he will be told what to choose. Evolution is slow and this change will take time. The consumer cannot be rushed into a thing. He must be led.

A prominent writer once said that "the religion of the masses is the true religion." We can learn a great deal from these words if we but use our imagination. A product that will appeal to the masses will be a successful product and we can safely say that a package that will appeal to the masses will be successful in selling the product which it contains. Thus we come to a point of understanding the likes and dislikes of the general consuming public.

With thousands and thousands of packaged goods on the market it is the manufacturer who applies the scientific methods in designing the package which clothes his product who will attain success safely and more quickly than will his competitor. Here, the manufacturer may ask, "How, and by what methods can this be accomplished?" The man who can readily do this job and the man who is becoming a more outstanding figure each day is the *Design Engineer*. He is a new man in modern business. He has the artist's feeling for color and beauty and the engineer's sense of construction; the instinct for practical values; the psychologist's keen mind for discovering and evaluating the mass appeal. It is his job to see that every physical element expresses beauty, unity, authority, style and salability.

Every business man recognizes the practical commercial value of good taste. Style, beauty, design in packages is here to stay because it is the answer to economic necessity. Every organization expresses its individuality to the public through the medium of design. Every letter that goes out from an office is evidence of good taste or bad taste. The color scheme of a truck or office, the appearance of a factory, is an outward and visible sign of a business personality. Yet the package, which is the soul of an industry, and because it clothes the product which comes in daily contact with hundreds and thousands of consumers, is given little consideration as to its appearance. And less thought is given to the masses who are color and design conscious. The properly designed package alone will not assure success. The product itself must have merit. It is the design engineer who can and will help the manufacturer in capitalizing on an idea that will bring forth the desired results.

Summing up briefly, we find that the package is a very important instrument in merchandise. Its identification and distinctiveness is most valuable to the manufacturer. Constantly changing interiors of stores is making way for the displaying of merchandise. It increases the field of competition and makes it necessary to give more thought to the designing of packages. Because we are living in a package age more emphasis should be made on the scientific selection of proper designs. The design engineer should be consulted in bringing about a salable article that is carefully thought out and practical.

Tabloid Encyclopaedia of Package Protection

By WALDON FAWCETT

NOT EVERY PACKER or package user—whether veteran or new recruit—realizes how many separate and different forms of package protection are open to his use. Yet is there no resource of business that is more important to the packager if he is to capitalize, for the long pull, the good will that he builds by service, advertising, and sales promotion. Here is a responsibility that merits attention at the outset of any enterprise in packaging. Or, as soon thereafter as possible. That is why package insurance is even more important in this age of package redesign than in the days when package dress was adopted for time and eternity.

By package protection, as we are using this blanket term, is meant the safeguarding of distinctive package appearance and unusual package features against duplication or simulation. There are two species of package trespass. On the one hand, is wilful infringement. That is to say, selfish, premeditated counterfeiting of package form or attire by an unscrupulous competitor of a pioneer in packaging. On the other hand is unconscious, unintentional duplication of design, typography, color scheme or package name. Morally, the two practices are wide apart. Practically the creator of an original package needs to be protected against both.

Package defenses against piracy fall into several groups and classifications. That is one reason why busy business men so seldom realize how many agencies confront them. For one thing, there is the national protection provided by Congress and administered by the Federal Government at Washington. Set over against this in one direction is the international protection afforded to American packages by the governments of foreign countries. In the other direction is the State or local protection provided by the legislatures of the several States of the Union for citizens of the respective States. The general structure of package protection may be further broken down into contrasting agencies of relief from package invasion. Redress of one kind is obtainable in the courts and special Federal tribunals. Official certification, that, as a sentry service, is almost as effective as punishment by the courts, may, meanwhile, be invoked via one and another of the "pedigreeing" services supplied at relatively modest cost by the executive branch of the Federal Government.

If any justification is needed for including in the PACKAGING CATALOG an inventory of the legal shelters and defenses of package originality it is to be found in the confusion which has arisen in respect to terms and designations. In providing encouragement of commerce, the whole effort of Congress and the Government administration has been to avoid covering the same ground twice. Pains have been taken to prevent the various ways and means of package protection from being pyramided one on top of the other or from overlapping one another in scope and function. Despite the official separation into well-defined legal or technical aisles, the business public continues to confuse the terms "trade mark," "patent," "copyright," etc. In some instances there is mixed use of these designations, as though all referred to one and the same thing. To the end that the package user may know his protective resources and select whichever instrument is best for a particular job of package defense, let us consider, one by one, the bulwarks of package monopoly.

The Trade Mark on the Package

IN ONE WAY, it may appear odd to place the trade mark first in this survey, considering that at this writing a package in its entirety cannot be registered at Washington as a trade mark. But, if a package cannot be, officially, a trade mark in name, the package may be a trade mark in fact in that the consuming public or the purchasing agents of a particular trade may be educated to recognize a distinctive package form as a clue to the origin or ownership of the packaged goods. Furthermore, all signs indicate that, sooner or later, Congress will revise and extend the basic trade mark laws of the nation to allow a certain measure of recognition to packages as trade marks. As it is, the laws of a number of the States today give trade mark recognition to packages. So, too, certain foreign countries.

Even if the packaging world has to wait, or maybe forego recognition of a utilitarian container as a fanciful, arbitrary trade mark, there remains for immediate protection the trade mark on the package. Perhaps it is not open to argument that the trade mark is, from the standpoint of display, consumer-recognition and self-sale, the most important single feature of the package lay-out. The trade mark is the tying medium that hooks up a full line or family of products, helping one packaged product to sell another. And it is the "continuity" bond which, in an era of perennial redesign of packages, may be de-

pended upon to hold public allegiance regardless of changes in package fashions.

As to obtaining a trade mark franchise from Uncle Sam. Understand, there is no obligation. A packager is under absolutely no compulsion to take out a license at Washington. If he is the first to adopt and use a certain type or dress of package, he automatically acquires certain property rights as against any later comer who seeks to pass off a masquerading package as the original. But, if a packager wants the best protection in export fields he will need to first register at Washington. If he wants to scare off possible poachers by a warning notice against trespass, he can best do it by trade mark registration. Then too, Federal registration is valuable in that it enables a victim of infringement to seek redress in the Federal courts instead of relying upon lesser courts.

Strictly speaking any packager who does not mind red tape should be able to carry out his trade mark registration at Washington. Actually, the average applicant prefers to summon to his aid a trade mark attorney. Because, as a prelude to registration, it is necessary to make a "search" of the official files to make sure that the proffered mark has not been anticipated by an earlier version of the same mark, or one so similar that it would be confusing to the public. The trade mark attorney usually charges his client say, $50, more or less, which covers the search, the official registration fee, the deposit of the required number of copies of the trade mark, etc.

While a package in its entirety cannot obtain the highest credentials as a trade mark, package features are acceptable, provided it can be shown that the selected feature is a special extra touch added for trade mark purposes and that it is neither an integral part of the package structure nor an adjunct serving a functional purpose. Thus, bands of color, seals and other accessories, which might appear to be very much a part of a unit package, have been accepted officially as trade marks. Ordinarily, the registrable mark is a symbol, device, word or name which is meaningless in the beginning but takes on, through use on the goods, a meaning pointing to the source of the goods. By official mandate the trade mark may be suggestive but must not be descriptive, which explains why package designations, trade-marks, etc., may not be registered. Geographical names are likewise excluded from registration.

All trade mark protection through Federal channels hinges on a showing of use *on the goods* passing in interstate commerce. The packager has an important stake here. Sometimes, laymen put themselves to a lot of unnecessary trouble by assuming that the requisite use on the goods means physical attachment of the trade mark directly to the commodity that is to be identified. This is too stern an interpretation. All the requirements of registration at the Department of Commerce are complied with if a trade mark is mounted or displayed on the package that encloses the goods. Use of a mark in ordinary advertising does not fulfil the trade mark obligation. But exposure on the package meets the bill. There is no objection to repetition. A single trade mark may be presented on all the faces of a package. Furthermore, the Government will register two or more trade marks for use on one package at the same time. That allows for a house-mark and a varietal-mark. Or, it permits the maker's-mark to share package space with an agent's mark or distributor's mark.

Copyright Offers Parallel Protection

REGISTRATION, as we have shown, provides a form of insurance for the trade mark on the package. That leaves the labels to be cared for otherwise, because, a trade mark alone cannot qualify as a label (being non-descriptive) though it may form part of the label, which latter is required to be descriptive. Label copyright takes care of label protection. Copyright on labels is obtained at the U. S. Patent Office, the same institution which carries on registration of trade marks. There is obtainable, through the Copyright Office, Library of Congress, another form of copyright protection. This latter is designed particularly for productions in the fine arts. It is a species of insurance that is seldom used by packagers unless it is desired to secure special protection for a picture or some other art feature of a gift box.

Label copyright, in contrast to trade mark registration, involves no official "search" and is obtainable at nominal cost. A label is supposed to have some artistic merit but this is not insisted upon strictly. Whereas a complete package is not accepted for registration as a trade mark, all the inscriptions on the several surfaces of a carton blank may be copyrighted as a label. If a trade mark is embodied in a copyrighted label that fact does not affect the registration of the mark. To this extent trade mark registration and label copyright are overlapping. The package-tops, cut-outs, etc., which many houses employ in conjunction with packages for display purposes, may be copyrighted under the same system as the labels. Only, these must be designated for entry, when copyright is sought, as "advertising prints" instead of as "labels."

Copyrighting a label, or even registration of a trade mark, means that in the event that the protected matter is invaded, Uncle Sam will take it upon himself to prosecute the infringer and collect damages. All that is left to the party whose good will is being pilfered. What registration and copyright do is to afford authoritative birth certificates. The Government testifies to a fixed date as the beginning of use of the trade mark or label. That means that a prior user has the means of convincing an unintentional imitator that he "saw it first." It means, in the case

of malicious infringement, that the prior user can offer the best of evidence in court that he has a superior right to his package—clues based on early introduction. In all the processes of Federal certification, date of adoption of a badge means nothing. It is the date of initial use on the goods or on the package which counts. Labels may be copyrighted without the aid of an attorney. Blanks, to be filled out, are obtainable at Washington. Trade mark registrations must be renewed after 20 years. Label copyright runs 28 years and may then be renewed.

Design Patents Shelter Package Inventions

THE MOST RESTRICTED form of protection, but the most valuable, open to packagers is the design patent. The design patent deals with the ornamental features or appearance of an object in contrast to the mechanical patent which covers the mechanism and the process patent which covers the mode of fabrication. Protection is deserved by new or fresh arrangements of package elements. Novelties in the form, shape, pattern and surface ornamentation of packages are entitled to preservation to the sole use of the originator. This species of protection the design patent system is intended to give. Actually its operation is restricted by the fact that a package or package feature, must, if it is to secure a design patent, qualify as an outright invention and not merely as a new version of elements old in the package art. Even so, a considerable number of design patents are granted every year in the package field. Unless a packer manufactures his own packages he may not be able to patent a package design except by arrangement with the container manufacturer. Package attachments, closures, accessories, etc., are open to patent as well as a complete container.

Expert legal aid is as advisable in a quest for a design patent as in prosecuting a trade mark application. The services of a competent patent attorney are worth all they cost to a person who has a really unique package. The expense for a design patent is likely to be somewhat more than for a trade mark registration and it may be a matter of months to obtain a design patent whereas it may be a matter of weeks, under favorable circumstances, to put through a trade mark. The official fee for a design patent varies according to the term—three and one-half, seven or fourteen years. The short-term patent affords protection for seasonal models and designs for which the marketer expects to enjoy relatively short-lived popularity.

Among the classes of packages that have been protected by design patent there may be mentioned barrels, crates, bales, sacks, baskets, bottles, boxes, cartons, jars, glasses, tumblers, cups, display containers, cans, and dispensers. While design patents are most favored as protective armor for packages, mechanical patents have been obtained upon a wide range of packages. To anticipate the questions of many persons who are eager to find means to fence off color conceits, it may be stated that, as a rule, design patents may be based on color only when the arrangement of color produces a new effect of importance. Occasionally, to be sure, trivial changes or expressions of color have been accepted as producing a patentable design. Usually, though, the Federal censors have held that mere substitution of one color for another possesses no element of originality and indicates no exercise of genius. To test for himself whether his package design is patentable, the reader may ask himself whether the new and original appearance of the package will increase its salability. A gain in salability through redesign is accepted officially as prime proof of inventiveness.

The Common Law as a Catch-All

A PACKAGE USER may forego the various forms of package insurance which have been enumerated above and yet invoke, if the need arises, a certain measure of relief from abuse of his "industrial property." The alternative is to seek refuge in the common law. Even though he has no patent, no trade mark, no copyright, a packager may go into court and seek an injunction and demand damages from a substituter who is so copy-catting a familiar package as to "pass off" the goods of one producer for the wares of another.

Some packagers shy at the idea of placing sole reliance on the common law because of the expense. That is not the heart of the matter. Lawyers' fees and court costs run into money, whenever it is necessary to give battle. No matter whether under the common law or under the trade mark and copyright laws. But the holder of valuable package rights cannot afford to turn the other cheek to package forgers. Allow then, that the expense of one species of enforcement of package rights is much the same as another, if the trespasser is haled to court. Not in this quarter, but in another, is found the fly in the ointment of the common law.

The disadvantage or, better say, the limitation of the common law as a shelter for package individuality is that it is available only after a certain amount of harm has been done. Trade mark and label protection operates, to a certain extent, to frighten away all but the most hardened trespassers. And the power of the law may be invoked the minute an infringement appears. A suit under the common law may be maintained only after package duplication has progressed to the point where it results in unfair trading or unfair competition. And to make out his case, a seeker of an accounting from a camp-follower must be able to prove in court that he has sustained actual damage measurable in dollars and cents from the diversion of trade through unwarranted package resemblance.

Package Policing by Federal Trade Commission

DURING THE PAST DECADE or two a new and valuable variant in package protection has come to the aid of package explorers. The Federal Trade Commission, sometimes dubbed "the supreme court of business," has elected to exercise its police powers to curb the counterfeiting of packages. Under the Clayton Act and the Federal Trade Commission Act, the Commission has power to issue cease-and-desist orders requiring traders to refrain from any practices that operate to impose upon the public. This last detail is not to be lost sight of. The Trade Commission will never proceed against a trailing packager merely because the trail-blazer thinks his rival is too close upon his heels. To secure aid from the Federal policeman it is necessary to show that there is injury to the general public.

In its early days the Commission fought shy of technical trade mark infringement cases, etc. It yet draws the line in certain quarters. But, applying much the same standards as the common law, the Commission will summarily halt subterfuges in competition that result in one package being mistaken for another. For the packager there are notable advantages in intervention by the Commission. For one thing, there is the saving in expense. The Commission foots the bill of investigation and prosecution, provides counsel, etc., instead of putting all that on the packager, win or lose. For another thing, redress is obtainable much more quickly than via the courts. Finally, the Commission always acts on its own responsibility, holding in confidence the identity of an informant or complainant. Thus, the righteous packager, who shrinks from controversial publicity, is spared the necessity of openly joining issue in court with a violator of package rights and at the same time maintain his rights.

Inter-Trade and Private Protective Agencies

THIS INVENTORY must, logically, concern itself in the main with the public and official systems and institutions that afford legal protection to distinctive packages and package features. The survey would, however, be incomplete without mention in passing of the fact that various manufacturing groups, trade associations, etc., have set up, for their members, services that cooperate to the common end of package protection. Private registration bureaus, assembling designs, trade marks, etc., are maintained by the silk industry, the paint people, the national organization of confectioners, etc. Commercial files or collections of unregistered as well as registered trade marks are at the service of package users. Some of the most effective agencies for avoidance of unconscious duplication of package features are maintained, for the free use of clients, by label and wrapper printers and container manufacturers. All in all, the jealous possessor of a unique or different package may surround himself, at no great expense, with burglar alarms and traps for trespassers that will effectually enable him to keep his created treasure to himself.

Definitions and Rules For Figuring Boxboard

THE FOLLOWING DEFINITIONS, rules and tables for figuring boxboard supplement the information as given on page 36 under the heading of "Nomenclature of Set-up and Folding Boxboard" and also referred to elsewhere in the book.

Bundle: A bundle of boxboard is a standard package of same weighing 50 lbs. The weight of a bundle does not vary.

Number: The "number" of board indicates the number of sheets, size 26 x 38 in., in a bundle weighing 50 lbs.

Count: By "count" is meant the number of sheets of any size in a bundle of 50 lbs.

Regular Size: The regular or standard size of all grades of board, except patent coated and solid manila, adopted for the United States, is 26 x 38, containing 988 sq. in. The regular or standard size of patent coated and solid manila board is 24 x 36, containing 864 sq. in.

Regular Number: The regular number indicates the number of sheets, 26 x 38 in size, in a bundle of 50 pounds.

To Determine Count of Odd Size Sheets: If not sure of the regular number of the board desired, determine same by gauge list. Divide the number of square inches in a bundle of the regular number desired, by the square inches in the special size sheet desired, and the result is the "count" or "number" of the special size desired.

To Determine Regular Number of Any Special Size: Knowing the count of the special size, multiply the square inches in special size sheet by the count, the result being the square inches in the bundle. Divide the square inches of the special size by the square inches in a regular sheet (26 x 38-988), and the result is the "regular number."

Basis of Gauge Lists: The size referred to in all the gauge lists, excepting patent coated and manila boards is the regular size 26 x 38, containing 50 lbs. to the bundle. The gauge list and ream weights of patent coated and manila boards are based on the ream, 24 x 36, 500 sheets.

(Continued on page 13)

The Size and Shape of a Package

THE CORRECT SIZE AND SHAPE of a package for any given commodity depends primarily on the character of the product and the conditions under which it is sold. Generally speaking, however, the rules governing the selection of the proper form for packaging any product may be grouped as follows:

A. Appearance.
B. Protection of contents.
   a. During shipping.
   b. While on display.
   c. While in use.
C. Advertising value.
   a. Suggesting character of the product.
   b. Carrying the trade name, message and name of manufacturer.
   c. Suitability for use in the various types of advertising.
D. Economy.
   a. In materials used.
   b. Time element of production.
   c. Adaptability to packaging machinery.
   d. Shipping and selling costs.

Appearance

CONSIDERING ATTRACTIVE APPEARANCE it must be understood that all package values depend upon the physiological laws governing sight. As the appeal of the package itself must be directed primarily to the eye a working knowledge of these laws is essential to the creator of packages. Although it is unnecessary for the manufacturer himself to delve into the fundamental laws governing visual perception, he should be in a position to determine whether or not the artist he employs is familiar with these laws and their relation to the sales value of a package.

Simply defined, sight is merely the action of light and color rays upon the visual field of the eye, combined with the nervous excitation of memory centers located in the brain, caused by these stimuli. Therefore, the most attractive package form is one that causes a pleasant visual sensation and stirs into instant activity one of the memory groups. The habits of association acquired over a period of time are a large factor in determining the most effective package form.

Certain color tones have, because of the velocity of their light waves, the ability to command instant attention. Yellow, orange and red packages on a shelf filled with packages in other colors will be seen first because of the fact that they are saturate colors possessing a high velocity. Frequently the color employed in the design of the package is instrumental in creating an impression of size. Tests have demonstrated that packages presenting a large surface in white, yellow, orange or red appear much larger than those presenting the same area of space in blue, purple or black.

In packaging food products and many other kindred lines it is frequently desirable to select a package form that will give the appearance of being larger in size than it really is. In the choice of a package form for an expensive perfume the reverse is frequently employed to suggest the exclusiveness and rare quality of the product.

JUDGMENT of relative sizes and shapes is the result of both sensory and intellectual activities plus the knowledge gained by actual experience in the comparison of objects within the field of vision at the same moment. At one time the ability to judge relative values of forms was considered by scientists to be inborn, but the results of later physiological tests have demonstrated that this mental attribute is gained only by visual experience. Children and morons are easily confused but as the intellectual growth increases with age or observation the ability to judge relative sizes and shapes becomes more acute. However, certain results of the actual movement of the eye itself during the process of perception frequently result in errors of judgment.

Although the weight of the contents of a package, particularly in food products, is regulated by laws and custom some packages appear, because of their shape and apparent size, larger than others. The use of a package which appears larger than it actually is cannot be interpreted as an attempt by the manufacturer to defraud the buying public. It is, rather, an appeal to the bargain-hunting instinct inherent in all those engaged in any type of commercial activities. As the psycho-analysts designate it, it is the instinct of self-preservation, considered by them the strongest of all human instincts.

Because of the anatomical construction of the eye, observation of an object from side to side is more easily accomplished than from top to bottom. It is for this reason that short, broad packages and containers present a greater appeal than those of the tall, narrow variety. As there is a tendency in visual perception to follow beyond the outline of an object, a round container which presents no eye-arresting edge will appear larger than a square one, although the contents and actual area may be the same. It is possible, however, to include in the design of the package lines or arrangement of lettering that will produce the same effect, even though employed on a square container.

While it may appear that we have gone far afield in this discussion of optical illusions in packaging, a knowledge of these idiosyncrasies of visual perception is of great importance in designing a package. Appli-

cation of these fundamental laws will result in the added attractiveness and salability of the package and they are of paramount importance in deciding the proper size and shape to be employed. Armed with this knowledge the creator of a package design will be able to produce through his selection of color, form and size the illusions the manufacturer desires.

Protection

THE FIRST FUNCTION of packages in the earlier history of this industry was protection of the product. More recently packages have become recognized as an important aid in merchandising and are being called upon to advertise and sell the product. In the main, however, in all branches of manufacturing the primary purpose of the package is protection.

Manufacturing centers are in many cases far removed from the point where the merchandise is sold and shipping problems enter into the selection of the proper package form. The size and shape of a protective container depends to a large extent on the character of the product to be packaged. Economy in shipping depends upon the selection of package forms that can be safely shipped over long distances without damage to the product and without loss through wasted shipping space. Packages in odd or irregular forms require special shipping cases and a great amount of shipping space is wasted, whereas it is possible to transport a large number of packages in the same space by the selection of simple forms. Shipping cases of standard sizes will hold many more packages in square and oblong shapes than oval, round and irregular forms.

Under existing retailing conditions the shelf space in the average grocery or chain store is limited, and for this reason the package form selected for food products must be one that can be easily stacked. Irregular shapes, particularly when the tops of containers are pointed or gabled, present a serious storage problem when shelf space is limited. A few of these difficult package forms have been successfully merchandised but the majority of them are unsuitable for food products. Toiletries, particularly in the grades retailing at high prices, are usually accorded more display space, and these products, because of their high retail cost and subsequent profit to the retailer, may be packaged in containers in odd and irregular shapes. In this instance it is frequently the novelty of the container that attracts attention and sells the product. Naturally the rules governing the selection of package forms for food products also apply to toiletries, retailing at little profit to the retailer because these items are usually sold in large quantities and a plentiful supply must be stocked.

Conditions surrounding the use of the package also influences the selection of the package form. Shelf space and use by the customer under known conditions must be considered. Bottles containing face lotions and other toiletries must be of a shape convenient to hold in the hand as well as store in medicine chests and shelves.

Products which remain during use in their original container require a different form than those that are emptied immediately. Packages for spices and similar food products which are usually used directly from the container must be of a shape convenient to handle and of a size to store conveniently on kitchen shelves.

Jars in which salves or cold creams are merchandised must be of a size and shape which will easily permit the purchaser to use all of the product. Bottles containing olives and pickles must be constructed so that the contents may be removed without difficulty. Liquid products must be packaged in bottles from which they may be easily poured without the possibility of spilling.

All these conditions determine the size and shape of a package used to protect its contents during use and must be considered in selecting the proper package form for the particular type of product to be packaged.

Advertising

FREQUENTLY the selection of the proper package form is determined by its possible advertising value. Before the final decision is reached it is wise to consider the channels through which the product is to be advertised. As the different types of publicity demand different treatment of package forms, they may be separated into the following classifications:

A. Advertising in newspapers.
B. Advertising in periodicals.
   a. Black and white.
   b. Color.
C. Outdoor advertising.
   a. Bill boards.
   b. Car cards.
D. Dealer displays.
   a. Window.
   b. Counter.
   c. Shelf
E. Sampling.

A product which has been, or is to be, widely advertised through newspaper publicity does not require a package form large enough to carry an extensive advertising message if the advertising campaign is to be a continuous one. There is little need of cluttering the package itself with lengthy sales messages if sufficient advertising is done to familiarize the buying public with the uses and merits of the product. In this case the package need only function as a link in the merchandising chain and the printed matter on the package itself may be limited to the trade name,

the name of the manufacturer and, occasionally, the sales slogan or other catch-phrase used in advertisements.

It is a well-known physiological fact that the normal span of attention is both limited and selective, therefore the most effective package form is one that provides an opportunity for sharp contrasts either on the package itself or with the backgrounds to be used in display, and presents a compact, poster-like, identifying feature. As it is usually impossible to govern conditions surrounding the display of the package itself, it is wiser to concentrate on the package rather than to depend upon the display for contrast.

IF THE PACKAGE is to be featured extensively in newspaper advertising the form chosen must be adaptable to reproduction in black and white. Limited advertising space frequently necessitates sharp reduction in the size of the package and for this reason the design and lettering used must be sufficiently strong in intensity and legibility to reduce to the required size without sacrificing its sales value.

It is an accepted fact that reproductions of the package in colored advertisements are of great assistance in fixing the package in the minds of the buying public. The number of manufacturers employing this method is on the increase and their reports on the steady growth of sales volume attributable to this practice is a strong argument in its favor. If the package is to be included in colored advertisements the package form chosen must be suitable for reproduction in that medium. The balance in advertising layouts is a factor worthy of greater consideration than is usually accorded in the selection of a package form. Possible artistic effects in relation to backgrounds and advertising copy must also be considered.

In this form of advertising the effect to be gained by the use of color in the package design is most important. White, red, yellow and orange packages give an impression of size but in many instances these colors complicate the problem of the advertising writers. Simple color effects and limitation of the colors used will greatly reduce the cost of color advertising. Each added color to a package design not only adds to the cost of reproduction but detracts from the effectiveness of the package when reproduced in this manner.

The question of the amount of advertising material to be included in the package design is also a determining factor in the selection of a package form. In many cases it is wiser to include a package insert in the package than to include directions and other printed material on the package itself. The additional cost of this method is more than compensated by the additional sales value of the package.

If, however, recipes, directions or other printed matter are desired on the package itself it is frequently advisable to choose a square or rectangular package form. Either of these shapes presents a large, unbroken surface for the display of the trade name and three surfaces which may be used for the directions and other printed material. These shapes also possess the advantage of commanding sufficient surface on display shelves.

If the character of the product requires a round container it is usually wiser to isolate the sales messages in panels on the back or sides of the container. This allows a large, unbroken surface for the display of the trade name or other identifying feature which may be used merely to identify the product, allowing a wide space for contrast of color or shape to instantly establish the identity of the product.

OUTDOOR ADVERTISING of the package itself necessitates the same consideration of size and shape required by other color advertisements. In this instance, however, the more poster-like in appearance the package form is, the better. This form of advertising, appearing as it does to the public in motion, depends for its advertising value on flash messages. For this reason the more simple package forms are more readily remembered, and if the package chosen is to be displayed in this type of advertising an easily remembered package form developed in simple color effects will produce the best results.

The possibility of dealer displays must also be considered in selecting a package form. The type of store in which the product will be sold determines to a large extent the shape and size of a package. Naturally a food product to be sold in crowded chain stores where display space is limited requires a more simple form than a perfume to be sold in exclusive shops. Gabled tops and irregular forms so complicate the problems of the already overburdened store manager that they are usually relegated to obscure corners, whereas the package in rectangular, square or round form will be granted sufficient shelf or window space to insure its full advertising value.

Products of which sample packages are to be distributed should be packaged in a package form adaptable to reduction. This fact is most frequently forgotten and the sample is distributed in a package entirely different from that used to merchandise the product.

Economy

TESTS HAVE DEMONSTRATED that in many instances savings in container costs could be effected by a slight change in the shape of the package. As demonstrated in Figs. 1 and 2 the change in the shape effected a startling economy in the quantity of box board used in the package although the cubic contents remained the same. At the same time the new container because of its shape commanded more

display space on the dealer's shelf and consequently secured better advertising for the product.

The same principle applies to cans and paper boxes. In the first instance it has been demonstrated that the simpler forms require less material and consequently cost less. While it is true that in the case of toilet articles retailing at a high margin of profit odd and irregular-shaped package forms frequently result in a larger volume of sales, it is nevertheless true that in products retailing at a low or medium profit the cost of the container is an important consideration. In addition to the savings effected in boxboard by the selection of simple forms there is also the saving in box papers and labor. In most instances paper-covered boxes are finished by hand and the labor involved in covering a many-sided box is much greater than that employed in covering a simple form.

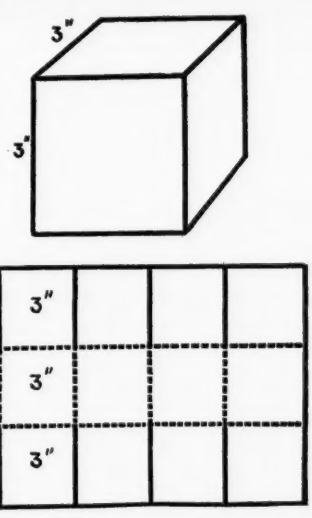

Fig. 1 Box size 27 cu. in. requires 108 sq. in. of boxboard

One of the most important considerations in determining the size and shape of a new package is the necessity of considering the type of packaging machinery available. Many designers entirely overlook this consideration and the manufacturer should be certain that the new package will be adaptable to the packaging machinery installed. Certain odd shapes in boxes, cans, bottles and jars are difficult to fill, label and wrap and for this reason should only be used where production is limited and hand packaging is possible. If automatic filling, closing, labeling and wrapping or cartoning is to be used the new package should be selected with this factor in mind not only for its design, attractive appearance, suitability for use in advertising and convenience in shipping.

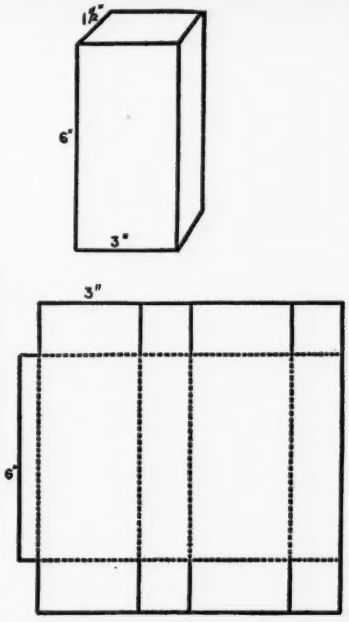

Fig. 2 Box size 27 cubic inches requires only 81 square inches of boxboard when this shape is used

Tables for Figuring Boxboard

(*Continued from page 9*)

GAUGE LIST NO. 1 FOR PLAIN STRAW AND PLAIN CHIPBOARDS

Solid jute, dry finish; filled wood pulp; filled newsboard, single news vat lined chip and single white vat lined chip

Basis 26 x 38	No. 1 Finish Thick to No. and Rough	No. 2 Finish Medium	No. 3 Finish Thin to No. and Smooth	No. 4 Finish Extra Smooth
No. 35.....	.064	.060	.057	.051
" 40.....	.056	.053	.050	.045
" 45.....	.050	.047	.045	.040
" 50.....	.045	.042	.040	.036
" 55.....	.041	.038	.036	.033
" 60.....	.038	.035	.033	.030
" 65.....	.035	.032	.030	.028
" 70.....	.032	.030	.028	.026
" 75.....	.030	.028	.027	.024
" 80.....	.028	.026	.025	.023
" 85.....	.026	.024	.023	.022
" 90.....	.025	.023	.022	.020
" 95.....	.024	.022	.021	.019
" 100.....	.022	.020	.019	.018
" 110.....	.020	.019	.018	.017
" 120.....	.018	.017	.016	.015
" 130.....	.017	.016	.015	.014
" 140.....	.016	.015	.014	.013
" 150.....	.015	.014	.013	.012

GAUGE LIST NO. 2

For cracker shellboard; plain shellboard, colored one side; colored boxboard, chip back; colored boxboard, chip center, news back; any combination board with solid news back; any combination board with solid wood back. Single manila lined chip; single manila lined chip center, news back; bleached manila lined chip; bleached manila lined chip center, news back; double manila lined chip and manila colored shell; colored suit boxboard, chip back; colored suit boxboard chip center, news back; mist colored suit boxboard, chip back; mist colored suit boxboard, chip center, news back. Test jute; test chipboard; jute lined chipboard; jute lined chipboard, news back; imitation jute; filled jute (chip center); solid jute (bending).

Basis 26 x 38	No. 1 Finish Thick to No. and Rough	No. 2 Finish Medium	No. 3 Finish Thin to No. and Smooth	No. 4 Finish Extra Smooth
No. 40.....	.050	.047	.045	.043
" 45.....	.045	.043	.041	.038
" 50.....	.040	.038	.036	.034
" 55.....	.037	.035	.033	.031
" 60.....	.034	.032	.030	.028
" 65.....	.031	.030	.028	.026
" 70.....	.029	.028	.026	.024
" 75.....	.027	.026	.024	.023
" 80.....	.025	.024	.023	.021
" 85.....	.024	.023	.022	.020
" 90.....	.023	.022	.020	.019
" 95.....	.022	.020	.019	.018
" 100.....	.020	.019	.018	.017
" 105.....	.019	.018	.017	.016
" 110.....	.018	.017	.016	.015
" 120.....	.017	.016	.015	.014
" 130.....	.016	.015	.014	.013
" 140.....	.015	.014	.013	.012
" 150.....	.014	.013	.012	.011

(*Continued on page 36*)

Typography in Packaging

By HERBERT KAUFMAN

ONE OF THE MOST IMPORTANT elements, and one of the most neglected, in the design of the package is typography. Used correctly it plays a very important part in stimulating the sales of packaged merchandise. Used incorrectly it renders ineffectual an otherwise effective package.

The purpose of this cursory study is to show how scientific methods may be made serviceable in handling practical problems of type selection and to present facts and principles of practical interest to the producers and advertisers of packaged goods.

The basic principles of package design which make for effective packaging are applicable in almost every respect to typography. The prime requisite in the choice of a type face is legibility. Above all else it should be easily read. If it fails in this it is a poor type and the package suffers accordingly. Legibility depends upon a number of factors, all of which should be correlated in the creation of the package. Namely: size of type, amount of space surrounding it, color of background, the kind and texture of the package material, the size and shape of the package and similar mechanical factors.

Another quality is simplicity in type. In choosing a type the following questions should be considered. Does it "stick" in the reader's mind because of its simplicity or is it too involved? Does it offer a ready recall and identification? These should be taken into consideration for the easier the visible impression is made in the mind of the consumer, the quicker will your packages sell. Simplicity in type makes for practicability in production and lessens the chances for mediocre printing. Eliminate anything tending to reduce the force of your message.

Getting attention or display value is a vital element in your choice of types. When one considers the number of packages on the shelves of a store, the reason for display value will be quite apparent. Your type face should make itself seen—should be outstanding and inviting. An important point to remember here is that type should not draw attention to itself as a type but only serve to make interesting that which it records.

THE TYPE should convey a feeling of atmosphere and of appropriateness. Atmospheric type has been used effectively by a number of manufacturers and in many different ways. It makes a pleasing impression and, properly conceived, this impression can be effective in pushing the sale of the product. The appropriateness of type or lettering to the commodity in the package depends upon its "feeling tone," its "atmosphere" or psychology. Type may be agreeable or disagreeable to look at; it gives form to thoughts as well as to words, and each type face expresses a definite idea or feeling or creates a definite image. In other words, make your type talk! Make it express durability or strength, character and dignity, dependability or delicacy. Is it virile, a man's product or a thing of beauty for feminine consumption? The lettering for Speed, Grit or Disston (with sawtooth letters) carries something of the significance of the product. The lettering of the trade names of Scottissue and Nashua Woolnap Blankets suggests softness. The difference in feeling as one reads is seen in two packages bearing the same name. Lux for hand soap and Lux for clothes—a delicate pattern of squares in one case and a heavy letter in the other. Such abstractions as wholesomeness and purity can even be suggested by the manipulation of type or lettering.

In conjunction with a proper degree of atmosphere one will find that an impression has been left—some form of identification has been established. When the need or desire for the product is aroused in the mind of the consumer, immediate identification will put your product under his or her arm.

There are a few definite rules to keep in mind in specifying type for copy on the package.

Lines that are too long cause extreme eye movements. When too short they cause a start and stop movement which produces eye fatigue. Try to see the beginning of your copy and the end at the same time and you'll strike a happy medium. Lines of equal length relieve eye fatigue and make for readability.

Using more than two or three sizes of type destroys emphasis, makes reading more difficult, is slower and fatiguing to the reader.

In spacing be sure that the grouping of your thoughts "makes sense." Give yourself plenty of white space and be careful of the background of your body of copy.

Lower case letters are more easily read, tests have proven, because words are read by shape and by their familiarity.

For effective typography remember that type faces constructed along simple lines with relatively few angles and corners are most easily read. Fancy and unusual faces should be avoided since they offer difficult reading.

Type selection for a package that has character, individuality, creates a favorable impression and reflects the product, is not a formidable problem—it calls for common sense and the application of proven advertising principles.

European Type Faces

Kabel & Italic Germany	GAIN popularity every DAY
Kabel Bold & Italic Germany	SIMPLY thru merit ALONE
Zeppelin Germany	NOT ONLY the advertiser
Bifur France	BUT EVEN THE LAITY
Erbar Initials Germany	ARE TAKING MORE
Metropolis Germany	NOTICE OF type design
Metropolis Bold Germany	THAN ever before
Metropolis Bold with long ascenders	The Best Faces will Pay
Nicolas Cochin Bold Germany	LARGER dividends always
Le Mercure France	THE FACES suggested here are
Astrée & Italic France	TYPES that are bound *to prove their WORTH*

VITAL change *takes* TIME	Eve & Italic Germany
LUCK plays *many* JOKES	Eve Heavy & Italic Germany
LIBERAL education	Narcissus Germany
PRACTICAL FORCEFUL	Neuland & Inline Germany
Typically Spanish Effect	Gloria Spain
ANY one can SEE	Greco Bold & Italic Spain
ADORNMENTS	Greco Adornado Spain
SUPERB GRACE	Sylvan France
TO one *who* IS	Sphinx & Italic France
NOT PREJUDICED	Sphinx Inline France
MANY advantages are *offered in Continental TYPES*	Lutetia & Italic Holland

American Type Faces

REFINED
Elevated
Modernique

FATHER
Changed
Novel Gothic

EMERGING
Stillson

SEASON
Boul Mich

QUAINT

MODERN

Regular Mon
Bernhard Fashion

Elaborate Displays
Rivoli

RED portfolios
Parisian

HIS toys
Dynamic Medium

PERFUME

Respectfully

daily thought
Paramount

Superior Quality
Raleigh Cursive

JUDGES
Cubist Bold

MOIRE
Modernistic

EXHIBITION

CAMEO

splendid bands
Bernhard Gothic Medium Italic

Handsome
Bernhard Gothic

Type That Talks

Rain Snow
Hail Heat
Fog Ice

RUST
MAN'S WORST ENEMY

DIRT
Shatters Sales Records!

Electric

The Singing Shave

"All Aboard!"

Color for Packages

IN DECIDING UPON COLORS or color combinations to be used in package decoration the manufacturer or designer, as the case may be, should place himself in the position of an artist considering a blank canvas. Just as the skilled artist produces effects of light or shade, attention value or obscurity for an object to be included in a painting so can the skillful designer of packages through the correct use of color produce the same effect upon his canvas which is the retail market, to be exact, the dealer's counters, windows, shelves or display cases.

Careful analysis of the retail market to be reached is the first step in selecting a color for a package design. The second, although equally important, is an analysis of the product itself, its function and inherent characteristics. Competing packages must also be considered for with the wealth of shades and color tones to choose from there is little need of imitating a competitor's package.

Color is the willing servant of the package user. Properly used it can be made to suggest the flavor, scent, composition or use of the product. It will aid the manufacturer of the product in obtaining display space in the retail store. It will make a product stand out distinctly against a background of competing packages. In addition it will simplify color advertising of the product and suggest backgrounds for use in car cards or posters.

Each individual product, however, is an individual problem. It is impossible to give an outline which will apply to all packages and the problem of selecting a color for a package or label for any individual product should be solved by a skilled package designer. A knowledge of the psychological effects and suitability of tones and shades, however, will greatly simplify this problem.

The visible color spectrum consists of yellow, orange, red, green, blue and violet. Of these red, yellow and blue are the primary colors, so called because they cannot be produced by mixing any other colors. Green, orange and violet *can* be produced by mixing other colors and for this reason are called secondary colors. Not so very long ago color was an unmeasured substance but studies made during the last twenty years have removed the use of color from guesswork and placed it on a strictly scientific basis where effect and application can be assured.

As an aid in measuring color three qualities have been determined—hue, value and intensity. *Hue* is the term applied in describing a color. *Value* is the measure of the lightness and darkness of the color and *intensity* is the measure of the brilliancy or purity of a color.

The user of color in package decoration should bear in mind the psychological influence of color, particularly when applied as a means of attracting attention and influencing the purchaser. The variations in hue, value and intensity of the colors used in package decoration have a pronounced effect upon the buying public and for that reason should be chosen with great care.

In combining colors care must be exercised in selecting the proper combinations. A color wheel will show suitable complementary colors and will aid the designer of packages in selecting colors. Certain colors when placed in juxtaposition are modified by each other. This point must be especially considered in designing labels for glass jars.

The following is a brief summary of the effects obtained by means of the more widely used colors. In the accompanying Correlation Chart of Color Interpretation, color means are arranged, for ready reference, according to symbolism, characteristic mood reaction, influence and temperature of color.

Yellow because of its high degree of light refraction is the strongest of the known colors. It suggests light, a degree of heat and energy. *Yellow-orange* because of the addition of red to yellow is a warmer hue than yellow. It possesses high visibility and has the effect of lessening the value of other colors in juxtaposition with it. This hue suggests heat, light, gayety and energy. *Orange* if high in value and intensity possesses all the attributes of yellow plus the aggressiveness of red.

Red is the most aggressive of all the colors. It suggests strength, heat, vitality and life.

Green is a cool color, suggests growth, peace and comfort. In its lighter hues it suggests newness.

Blue is also a cool color. It suggests tranquillity, luxury and passivity. In its lighter hues it suggests cleanliness and freshness and for this reason is particularly suitable for packages containing soaps or cleaners. It loses value under artificial illumination and for this reason must be sparingly used for packages shown under usual retail conditions.

Purple because of its long association with royalty suggests luxury, spaciousness, exclusiveness and loyalty. When combined with red it is a warm color, but when used with blue it becomes cool and recessive.

Gray is a quiet color. It does not possess the power to attract attention and for this reason should not be used for packages which are to be placed in competition with packages in more vivid hues.

Black signifies gloom and sadness. However, when skillfully combined with gold or silver it suggests luxury. Used with white it suggests chic and smartness.

Gold and Silver suggest luxury, smartness and wealth. Either may be used to heighten the effect of other colors.

Correlation Chart of Color Interpretation

1. Light Values *2. Medium Values* *3. Dark Values*

HUES	SYMBOLISM	CHARACTERISTIC	MOOD	Influence	Temperature
Red-purple	2 Battle 3 Heroic Virtues 2 Valor 3 Prowess	2 Stateliness 2 Impressiveness 2 Haughtiness	3 Cold 3 Chilly 2 Tragic	SUBDUING COLORS	COOL COLORS
Purple	3 Loyalty 2 Patience 2 Fidelity 3 Allegiance	3 Dignity 3 Royalty 3 Seriousness 3 Imperialness	3 Dark 3 Ceremonious 3 Cold, Grave 3 Austere 3 Pompous		
Purple-blue	3 Solemnity 3 Majesty 2 Reverence 2 Sublimity	3 Apathy 3 Harshness	3 Stern 3 Unyielding 3 Cold		
Blue	3 Truth 3 Consistency 3 Justice 2 Sincerity	2 Tranquillity 2 Calmness 1 Expansiveness	2 Passive 3 Cold 3 Deep		
Blue-green	2 Peacefulness 2 Serenity 3 Placidity	2 Retiredness 3 Unexpressiveness	2 Sedate 3 Sober 3 Cold	TRANQUILIZING COLORS	
Green	2 Fruitfulness 2 Hope 2 Immortality 2 Prolification	2 Youth 2 Vigor 2 Life 2 Appeal	2 Cool-Passive 1 Refreshing 2 Restful 3 Quiet-Retiring		WARM COLORS
Green-yellow	2 Encouragement 1 Happiness 2 Success 1 Prosperity	1 Cheerfulness 1 Refreshfulness 1 Vivacity 1 Alacrity	2 Springlike 1 Gentle 2 Stimulating 2 Flush or Warm		
Yellow	1 Supreme Wisdom 1 Goodness 1 Inspiration 1 Prudence	1 Joyfulness 1 Gaiety 1 Merriment 3 Sickness	1 Warm 1 Light 1 Joyous 1 Active 1 Stimulating	EXCITING COLORS	
Yellow-red	1 Knowledge 2 Benevolence 2 Home 1 Light 2 Benignity	1 Liveliness 1 Warmth 2 Gravity 3 Sombreness 3 Strength	1 Mellow 1 Warm 2 Rich 2 Luscious		
Red	2 Love 2 Valor 2 Passion 2 Truth	2 Danger 2 Sanguinity 2 Fire 2 Anger	2 Intense 2 Fierce 2 Hot 2 Vital 2 Active 2 Exciting		
White-silver	Chastity Innocence Purity	Peace Modesty Reservedness	Dignified Clean Chaste		
Gray	Tribulation Humility Distress	Quietness Subduedness Repressiveness	Calm Serene Mild		
Black	Death Mortality	Gloom Darkness	Mournful Sad		
Gold	Richness Glamour Enchantment	Money Gold Glory	Glorious Powerful Distinctive		

Importance of Adhesives in Packaging

By E. OLDHAM

IT IS DIFFICULT to imagine a much more prosaic subject than glue. Of all the various factors which enter modern packaging glue is probably, and unfortunately, considered the lowliest by the average manufacturer. The probable reason is that glue has none of those qualities which come under the head of "consumer-appeal." The average manufacturer who packages his goods becomes enthusiastic on such subjects as package color, shape, design, etc. He will hold many conferences and lie awake at night trying to determine whether this color or that design or a certain style of lettering will create greater consumer-demand, and lastly he will think about glue for labeling, wrapping or sealing, if indeed he thinks about it at all. Often he buys the cheapest and most easily attainable adhesive, as long as it appears to "stick." Of course there are some notable, outstanding exceptions to this rule. A few of the large, successful packaging organizations, realizing the importance of glue in packaging, give as much study to the adhesives they require as they devote to the other factors of their packaging. Some even employ chemists and mechanical experts to supervise their adhesive operations. But, generally speaking, the average manufacturer who requires an adhesive to complete his package, looks upon glue as an annoyance and a necessary evil attending the packaging of his goods.

Manufacturers of adhesives do not claim that glue is the most important factor in packaging, but they do claim that glue is a vital factor, affecting not only the appearance, but the merchandising of the finished article. This claim has been corroborated time and time again by the bitter experiences of many manufacturers who gave little or no heed to the proper adhesives for labeling, wrapping or sealing their packages. In the field of labeling alone, which is a comparatively simple adhesive operation, thousands of dollars have been lost by manufacturers simply because they did not use the *right* glue for their particular labeling proposition. Many manufacturers, for instance, put up their products in tin or glass containers. They devote a lot of thought to the details of the package; they spend a good deal of money to make their containers distinctive and appealing to the consumer; they design and print expensive labels. And yet, when they come to attaching those labels to the containers they apparently think any kind of glue or paste will serve the purpose as long as it seems to "stick." The result is that many expensive and otherwise attractive containers lose their merchandising and advertising value because the labels curl or peel or fall off *after* the containers leave the manufacturing plant and *before* they reach the consumer. The question may fairly be asked: What good is a label anyway, unless it delivers its identifying and advertising message? The answer to this question establishes one important use for proper adhesives.

What has been said about labeling applies with greater force to packages which require sealing and to cartons which require wrapping because those operations are usually far more complicated than labeling. Unless the proper adhesive is used for those operations packages will lose something of their compactness, neatness and attractiveness before they reach consumers, if indeed they ever get that far.

Glue is not merely something which apparently sticks, and there is no such thing as one kind of glue that will do all kinds of adhesive work. Glue is, or should be, a specially made product to perform a specific packaging operation. Different surfaces require adhesives of different ingredients and qualities. Different weight and grades and colors of paper require adhesives of different consistencies, "tackiness" and drying qualities. Different machines for labeling, wrapping or sealing require different glues or gums to suit varying styles of mechanical operation. A glue made for adhering delicate glassine wrappers to packages cannot reasonably be expected to seal fibre shipping cases.

IN THE FIELD of automatic packaging where containers are labeled, wrapped or sealed by automatic or semi-automatic machines, it is vitally important that the proper adhesive be used for each individual gluing or pasting operation. The deficiencies of an adhesive may be detected when packaging work is done by hand but machines operate without judgment. They continue to operate even with an unsuitable adhesive until forced to stop. Many expensive packaging units have been damaged to the extent of thousands of dollars by the use of glue which was not adapted for certain mechanism. The greatest danger lies in the unseen damage inflicted upon packages in mass production through the use of adhesives which deceive while they are apparently performing efficiently. Unfortunately such damage cannot be noticed in many cases until after the packages have actually been marketed. For example: a carton wrapping machine may be used for pasting on wrappers of light weight paper stock or a delicate shade of color; the paste used for the work may operate perfectly as far as adhesiveness is concerned but the paste may con-

tain an acid or ingredient which reacts disastrously against the paper stock or color. Such reaction is generally not apparent until after the paste, which adheres the wrappers to the cartons, has dried thoroughly. When the cartons come from the wrapping machine they look clean and perfect enough to pass rigid inspection. They are often packed immediately in shipping cases before the wrapper paste has dried. The reaction against the paper or the color takes place *after the cartons are actually packed and shipped.* When the cartons reach the distributor or retailer the wrappers are often spotted or streaked, stained or discolored. Many "bargain-counters" of stores throughout the country are loaded with otherwise fine merchandise which cannot maintain its price prestige on dealers' shelves simply because the wrong adhesive was used for a wrapping, labeling or sealing operation.

Manufacturers who put up their products in consumer-units, whether those units be packages, cartons, bags, bottles, jars, can or barrels, can often save a lot of money and avoid a great deal of acceptance-resistance simply by getting the *right* glue for their particular adhesive operations. This is not any more difficult than getting the right size of containers or the right grade of packaging materials, but it is just as important. Any reputable manufacturer of glues and gums, experienced in solving adhesive problems, will be glad to study a manufacturer's particular adhesive requirements and prescribe a product which can be relied upon.

Ink in Package Making

By ARTHUR S. ALLEN

BEAUTIFUL DESIGN, the finest choice of color and carefully prepared board are all for naught in the making of a package unless the proper inks are used. The cost of this item is generally such a small part of the total that often little attention is paid to it.

There are many instances where work has been ruined, not because the inks were not well made, but because consideration was not given to the way the job was to run, or to the timing of one color with another. A valuable rule to keep in mind is that in two-color printing the first color must have more tack than the second, in order that the first color will pull off the second without mixing and thus avoiding the dulling of both colors.

Below is a formula for a very satisfactory box ink to run on a single press on a good patent coated stock at a normal speed of 1500 per hour.

In a possible hundred parts the formula is divided as follows:

28 parts color
38 parts linseed oil varnish
15 parts magnesia
13 parts dryer
6 parts petrolatum

The color may be composed of two or three materials—one to make the ink to meet a price and another to get the exact shade, both being practically the same color. The use of cheap materials of an approximate shade to get the price down a few cents per pound frequently plays havoc with a handsome package on which thousands of dollars have been spent to wrap a product that has taken years to develop.

The second item of the formula, the linseed oil, is of many different consistencies. This acts as a carrier of the color so that the ink will lie on the board smoothly and be held there.

Boiled oil, and other like materials, are used for the same purpose but oil must be understood so as not to destroy the balance or working qualities of the ink.

Magnesia is put in as a cheapener and often too much is added. This has a tendency to weaken the color and destroy its brilliancy.

The dryer is added to set the ink and bind it to the board. More dryer is needed if the board is not properly seasoned. If too much dryer is added it causes the ink to set too quickly, making the sheets stick together.

Petrolatum is put in to take the tack from the ink and make it possible to run the presses at high speed without heating the rollers. Petrolatum is also added to stop pulling of the paper surface.

It is impossible in a brief article to explain all the minute difficulties encountered in the printing of a paper box, but it is obvious that it is easy by altering the formulas given above to ruin a job of printing by giving the ink too much or too little tack, thus throwing it out of balance.

MOST PRESSMEN know how to treat an ink to make it work, but unless they understand how it is made in the first place they may get into serious trouble by altering it the wrong way or with the wrong materials.

As ink that is carrying 25 per cent of magnesia is weakening the color as much as it should be, it would be disastrous to add 15 per cent more. It might not be detected when the printing was wet, but when it dries out, the color would show much additional weakness and be less brilliant.

An ink should be tacky enough to clean the form after each impression, greasy enough to run without mottling or heating the rollers and brilliant enough to hold its color well on a given stock.

There is always a slight variation in color owing to stock, weather and rollers, so unless the most intelligent care is used one cannot expect perfection in ink results.

I have found it desirable to give a pressman a limit of error to work with. Provide him with, say, five steppings of color, which are made with the least amount of ink up to a full volume and then have him keep his color in the range of the three middle steppings. This method has produced satisfactory results and both customer and printer have a better understanding with less dissatisfaction.

Use of Waxed Papers in Packaging

WAXED PAPERS are generally divided into three large classes. There are, of course, many subdivisions of these three classes but for practical consideration these general classes are as follows:

Dry Waxed Paper: Impregnated with paraffine of a relatively low melting point. Carries little or no surface wax and is dry to the touch. Not entirely proof against water, vapor and air. Such a wrapper is a protection against contamination by handling or contact and, to a considerable degree, against changes in moisture content. Is not self-sealing on application of heat. Its use is indicated in many special instances.

Semi-Moisture-Proof Waxed Paper: A heavier coating of paraffine with correspondingly greater resistance to the passage of air and of water vapor Is not self-sealing on application of heat. Used as a wrapper for many products, but especially useful as a liner or divider in package goods.

Self-Sealing Waxed Paper: Heavily coated with paraffine of high melting point, skillfully applied so that through the application of heat, the coating will fuse at folds and openings to form a container, which is, to a high degree, airproof, moisture-proof, odor-proof and insect-proof.

Dry waxed papers are good "twenty-four hour sheets" and admirably suited for use by delicatessen stores, groceries and meat markets as a covering and wrapping for moist and greasy products which require protection only for a short period of time. They are not nearly as airproof as self-sealing waxed papers but, unlike the former, can be formed into bags by the use of various common adhesives.

Waxed paper, unlike vegetable parchment paper, is neither water-proof nor greaseproof but, as pointed out, self-sealing waxed paper is airproof where parchment is not.

The use of waxed wrappers is being rapidly extended. New uses are constantly developing and with these new uses, variations in type of wrapper must naturally follow. Many industries and marketing practices have been changed through the adoption of protective and retentive coverings. Products of perishable or seasonable nature have become year-round staples. The question, "Is it fresh?" has become not a question of age, but of protectability in wrapping.

The varied uses of waxed paper of all grades are practically unlimited. While originally waxed paper was designed as a protective wrapper for food products, it has now extended its field of usefulness into a great number of industries. Many manufacturers have found that waxed paper fills a long desired method of protection against various factors that have had a tendency to deteriorate their products.

Another valuable property of waxed paper is its insulation value. Any food that is subjected to rapid temperature changes deteriorates quickly. An ice box is valuable not because it keeps food cold but because it prevents food from being subjected to rapid changes of temperature. Waxed paper performs a similar function.

Of recent years the metal trades have found that waxed paper is a good protector against rust and corrosion, due to its air- and moisture-proof protection qualities. This is especially true when a proper inhibitor is used. Laboratory tests show the protective qualities of waxed wrapped packages of food products against insect infestation, and the large use of waxed paper by progressive food manufacturers indicates that they realize the necessity of proper protection of their products.

RECENT DEVELOPMENTS have made possible the production of a waxed paper of a transparent nature, which thereby insures the user of the full advertising value of his printed carton, as the reading matter can easily be read through the waxed paper wrapper. It creates an individual showcase for each package. Any product which it is desirable to have safeguarded from air, moisture, odor and rapid temperature changes can best be protected by using the proper grade of waxed paper.

Many factors enter into the selection of the proper type of wrapper for each individual product and the development of such wrappers has been, for some years, the subject of intensive scientific research. Chemical changes, moisture content, retention of aroma, attack by insects, fermentation, and countless peculiarities in the product to be wrapped are to be considered. The services of fully equipped laboratories of various waxed paper manufacturers are at the disposal of users of waxed paper to assist in determining waxed paper problems.

Genuine Vegetable Parchment

By JOHN R. DUFFORD

THERE ARE ESSENTIALLY two kinds of parchment, animal and vegetable. Animal parchment is the prepared skins of animals, usually sheep, and has been used in the past chiefly for documentary purposes. Vegetable parchment, as the name implies, is basically of vegetable origin.

The preparation of pure vegetable parchment consists of two separate and distinct processes. The first is that of manufacturing the paper later to be parchmentized called waterleaf. In order that the second process, that of parchmentizing, may be effectively conducted, it is necessary to exercise every care in the selection of raw materials entering into the waterleaf, the purest cellulose producing the best results. Waterleaf for vegetable parchment differs from most papers in that it does not contain sizing or loading materials. Small quantities of either of these substances seriously impair the parchmentizing of the waterleaf to which they have been added. As the resultant finished vegetable parchment is in a large measure dependent upon the quality of the waterleaf it is clear that the processing of the waterleaf requires expert supervision and attendance.

The second process in the manufacture of vegetable parchment is that of parchmentizing. It is this process which renders the finished product so widely different from other papers. When properly prepared, waterleaf is subjected to the action of sulphuric acid and under suitably regulated conditions a peculiar reaction occurs. Action of the acid at first produces a gelatinous substance called amyloid, which completely envelops each individual fibre. The amyloid, in addition to having enveloped the fibres, has filled the interstices between them and by a cementing action has bonded the material into one homogeneous mass.

Thus we find the original waterleaf has undergone such modification by treatment with sulphuric acid that it no longer softens or separates into its constituent fibres on being immersed or even boiled in water or salt solution, but retains its coherence, is impervious to water, grease, blood and air, and preserves its newly acquired properties when re-dried. Pure vegetable parchment is semi-transparent, odorless and tasteless.

EVERYONE who has had to deal with moist, delicate, perishable food products such as butter, ice cream, fresh meats, fish, etc., appreciates that their marketing value is considerably elevated by using the proper wrapper.

Butter, the extremely important everyday article of food, is one of the most delicate of food products and is exceedingly susceptible to contaminating influences. Realizing this fact, every precaution is taken in the manufacture of vegetable parchment to have the product reach the consumer in as pure and sterile a condition as it is humanly possible to make it under operating conditions. Even so, it is admittedly good practice to subject the butter wrappers, tube liners and circles to the action of boiling water or boiling super-saturated salt brine immediately before using. The effect of the above treatment is twofold, the heat destroying the mold spores that may adhere to the vegetable parchment, and the brine adhering to the vegetable parchment helping to inhibit growth of mold germs that may be in or on the butter.

One can readily understand that this extremely important preventative measure against mold infection would not be possible if ordinary paper were used. Under this treatment the paper would disintegrate to a pulpy mass and be rendered useless as a food wrapper. However, one of the outstanding properties of pure vegetable parchment, its insolubility, renders its extremely adaptable to this procedure. Then, too, this inherent quality of vegetable parchment, the fact that it does not disintegrate in contact with moisture, makes it possible for the ultimate consumer to not only remove the wrapper intact, but also, if only a portion of the product is to be used at one time, to rewrap the remainder, thus preserving the original good qualities of the butter until entirely consumed.

THE PROPERTY OF BUTTER to absorb readily foreign odors and acquire an unpleasant taste makes it imperative that a butter wrapper shall be odorless and tasteless. Pure vegetable parchment is odorless and tasteless and these characteristics unquestionably recommend its use to the packer of butter.

Butter tends to lose moisture during transportation and in storage. Aside from the reduction in actual value due to the diminished weight through loss of moisture, excessive leaking may injure its flavor. Vegetable parchment, being impervious to moisture and air, not only reduces this shrinkage to a minimum, but in storage prevents, to a large extent, losses incurred through contact with air, which causes deterioration of butter through oxidation or bacterial action, or both. Vegetable parchment-wrapped butter is also protected from the direct action of light, the tendency of which is to intensify bacterial action.

The general wide-spread demand for clean food makes it necessary for the producer to market his product in as cleanly and attractive a manner as possible. The translucency of the vegetable parchment wrapper presents the butter, on removal from the

carton, in a clean, wholesome, and appetizing condition. When printed with colorful designs of the various brand names in brilliant fast color inks, vegetable parchment has sales appeal as well as protective qualities. Then, too, the print may be handled with facility because the fatty constituents of the butter have not permeated the parchment. It is the predominating characteristics of pure vegetable parchment briefly outlined above that have earned for it the distinction of being the best protective wrapper for all moist food products.

Vegetable parchment can be made into bags or envelopes. It is also fabricated with cardboard in box form as a grease- and moisture-proof liner. Manufacturers of genuine vegetable parchment maintain special departments for research purposes.

Glassine Papers

GLASSINE PAPERS, from the standpoint of the protection afforded to the products wrapped or otherwise contained in them, possess the following qualities:

Greaseproof	Airproof
Greaseless	Moisture-proof
Dustproof	Strength

Considering adequacy of application they are easily printed, readily gummed, furnished in either rolls or sheets, obtainable in various weights and can be successfully and economically used in automatic wrapping machines.

With respect to the merchandising properties of glassine papers—that is, their ability to attract attention and obtain sales for a package—the quality of transparency is undoubtedly the greatest argument for their use. This quality holds true whether the papers are plain, embossed or furnished in colors. Glassine papers likewise offer an opportunity for a wide diversity of design either as a background for labels or other decorative features that may be incorporated in the package assembly.

Although recognized as an ideal wrapping agent for many purposes, it was found that with the development of the packaging of foods of a perishable or semi-perishable nature, better protection is given such articles when the glassine is waxed. Treated with a coating of tasteless and odorless paraffine wax the glassine becomes a most effective protective wrapper, for in addition to the greaseproof, dustproof and transparent qualities it becomes moisture-proof as well.

Other waxed papers are used extensively by the manufacturers of various food products, but waxed glassine has proved itself superior for certain commodities so that, in several instances, it has supplanted other waxed papers. For instance, the baking industry has adopted waxed glassine as practically a standard wrapper for cakes, cookies, etc., within the last five years.

Glassine paper as commercially produced today is comparatively strong, flexible and pliable. When waxed it becomes self-sealing and its transparency is enhanced. Used as an outside wrapper for a printed carton it presents a glass-like appearance through which the finest print is plainly legible. This results in the maximum advertising and sales value of the well-printed cartons which are coming into favor in present-day methods of packaging and merchandising among the several groups.

Further considerations which admit the ability of glassine papers to perform package functions are evidenced by the fact that these papers have been successfully used, individually and collectively, as wrappers, dividers and liners for cartons, cans and other types of containers as well as for separate or individual wrappers, applied directly to the product and forming thereby the package itself. Furnishing an ideal wrapping for many purposes, and due to their improved quality and adaptability to packaging operations, the use of glassine papers has become increasingly popular in the packaging field and promises to become even further extended.

EARLY IN THE DEVELOPMENT of packaging, it became apparent that glassine was, in many ways, ideal for machine wrapping; it was inexpensive and it filled the bill nicely as to the requirements of appearance and protection. The tobacco industry was one of the first to use automatic wrapping machinery with glassine as the wrapping material. Almost all the leading brands of cigarettes have a glassine wrapper over the package, and hundreds of machines are now in use on cigarettes alone. Several brands of smoking tobacco also use glassine for wrappings.

The advantages of glassine wrapping were quickly realized by other industries, and a demand for wrapping machines to use glassine sprung up. This had been foreseen by the wrapping machine manufacturers, and they were ready with a number of models in lines of automatic equipment to handle the packaging of various sizes and shapes.

Many different types of machines have been built for wrapping these different types of packages. For the most part, these machines are built for one size and one type of wrapping only, although certain types are more or less flexible. Some types are faster than others, but an average speed of all types would be about 100 packages per minute.

Glazed and Fancy Paper

By LEONARD I. HOUGHTON

THE FOLLOWING DEFINITIONS apply to the various types and kinds of glazed and fancy papers and to various terms used in connection with their sale and use. This information has been furnished by the Glazed and Fancy Paper Manufacturers Association.

Bodystock: The kind of paper, such as kraft, ground wood, which is coated, embossed, etc.

Brush Finished: Papers which after calendering are further polished in a machine which thoroughly brushes the surface. This process is not in as common use as formerly. The final finish is smoother and thereby made more dustproof.

Cloth-lined: Paper and cloth pasted and pressed together into a single sheet of material. Used for paper collars, envelopes, tags, childrens' books, etc.

Coated, Fancy: Papers with fancy effects produced upon the coating machine instead of by printing or embossing. This is done by many means, such as spraying, spattering, mottling, felt blocks, moving brushes, etc. There may be one or several colors used and the finished paper may have a regular design or it may consist of a fancy effect without a design which repeats itself.

Cubist: Designs after this fashion of angles.

Embossed, Heat: Papers to whose coated surface has been applied a heated roller with a design the raised portions of which, coming in contact with the coated surface, cause a change in the shade of color.

Embossed, Plain: Papers which have a pattern pressed into them. The raised portion usually appears on the front surface.

Embossed, Print: A plain embossed paper which has ink in the depressions forming the embossing pattern.

Embossing Designs, Common: There are around 100 embossing designs commonly used, such as basket, skytogen, etc.

Embossing Designs—Exclusive: There are several hundred different embossing designs, in addition to the common ones, which have been originated or purchased by individual manufacturers who thereby own these designs exclusively. Such designs are frequently protected by registration at the United States Patent Office. Most manufacturers do not desire to copy others' designs, preferring to have exclusive designs of their own. The Glazed and Fancy Paper Manufacturers Association, 146 Chestnut Street, Springfield, Mass., maintains a registration bureau of these designs for the protection of its members and to answer inquiries from customers and users. They are glad to tell users where a particular design may be obtained.

Fabric Designs: Printed designs, in imitation of various fabrics, commonly known as "fabric prints." Embossing designs in imitation of fabrics such as rep, linen, etc.

Flint: A coated paper, white or colored, finished by rubbing with flint stones, thereby producing a very shiny surface.

Flock: Papers coated with flock, finely powdered wool or cloth, usually called velour or suede.

Floral: Designs, of which there are many, both printing and embossing, using flowers as the basis of the design.

Friction Glazed: Coated papers that are finished in a friction calender which produces a highly polished surface as a result of the rotary action of a steel roller.

Gold Papers coated with metallic substances which look like gold.

Holly: Papers with a printed or embossed holly design, largely used at Christmas.

Intaglio Printed: Papers printed with the intaglio printing roller which has the pattern cut into the roller and transfers the ink from these depressed places to form the printed pattern on the paper. The amount of ink transferred is controlled by the depth of the cut-in portion on the roller; in this way some parts of the pattern have more or less ink and thereby produce the printed pattern in varying shades of the same color. This cannot be done with a surface printing or wall paper machine. According to Webster this word is pronounced in-tal′-yo, the "tal" as in "tallow."

Leather Grain: Papers with leather grain designs which are either produced by printing or embossing. Common examples are alligator, Persian lamb, etc.

Marble Agate: Papers with a design imitating polished colored marble. The design is sometimes a printed design but real marble agate papers are made by floating metallic powders on water from which they are transferred to the paper. This is an old process in Germany where it is done by hand. An American company has patented and operates a machine for doing this.

Metallics: Papers coated with such metals and in such a manner as to give the lustre of metals.

Mica: Papers whose coating material includes small particles of mica which give a sparkling appearance.

Moiré: The name of a large class of embossing patterns which, after the manner of textiles of the same name, give a mottled or watered appearance.

Multi-Color: Papers coated, or originally made, with many colors mottled or blended into a fancy effect.

Non-fading: Papers that resist fading when exposed to sunlight. Most papers will fade some, and

some colors fade more than others. There seems to be no colored coated papers which are absolutely non-fading or fast to sunlight.

Pearl: The well-known and very beautiful mother-of-pearl paper. The paper is coated by a special process with certain salts and then so treated that a crystallization process occurs which develops the mother-of-pearl design. This is a French manufacturer's product. It is understood that an American company has developed a different process of producing the same results with pyroxyline.

Plate: Coated papers finished in a stack calender which produces a dull finish by means of pressure.

Printing Designs: Some designs are common designs, that is, common to the industry and obtainable from many different manufacturers. Other designs have been created or purchased by one manufacturer only, and frequently registered by them in the United States Patent Office. These are called exclusive designs. The office of the Glazed and Fancy Paper Manufacturers Association maintains a file of members' samples for use in answering inquiries as to the source of any desired printed design.

Pyroxyline Coated: Papers coated with pyroxyline solution.

Ream: 500 sheets is commonly used instead of the 480 which we learned in school. Size 20 in. x 24 in. has been commonly used as a basis for prices. There is a tendency at the present time to use 20 in. x 26 in. because these papers are most frequently sold in 26 in. rolls. It is thought by many that 25 in. x 40 in. will come to be the common basis since this represents 1000 sq. in. and quantities could therefore be handled by the decimal system.

Rolls: A roll usually contains from three to four reams of the lighter weight papers, 17 lbs. to 25 lbs., heavier papers naturally having fewer reams per roll.

Sateen: Another name for mica papers.

Skytogen: A large class of embossing designs consisting of many small raised portions in no particular pattern. They are supposed to represent the background formed by a cloudless sky. The name is pronounced in various ways, but the preference seems to be with the accent on the first syllable: sky'-toe-jen.

Silver: Papers coated with metallic substances which look like silver, sometimes called aluminum papers.

Suede: Another name for velour or flock paper.

Surface Printed: A fancy paper on which a pattern of many colors has been printed by direct transfer of ink from raised portions of printing rollers.

Swirl: Designs, both printed and embossed, which consist largely of circular lines.

Tarnishing: Discoloration of metallic papers caused by chemical action from contact or vapors. The same action that occurs to gold and silver in their common uses.

Tinfoil: A paper coated on one or both sides to imitate tinfoil.

Tissues, Fancy: Tissue paper upon which has been printed a fancy design. Frequently, it is embossed with another design. Largely used for envelope linings.

Trade Mark Designs: Trade marks printed or embossed on the paper.

Velours: A paper coated with flock. Flock is a finely powdered wool or cloth. Sometimes the term "velour" is applied to imitation leather papers.

Water-proof: Papers whose coating material includes such ingredients that the surface becomes to a large extent non-absorbent of water.

Weight: The weight per ream on a basis of 500 sheets, 20 in. x 24 in., of the bodystock.

Wood Grain: Printed papers with designs imitating various wood grains.

Considerable delay is caused by customers sending in an order for a certain number of reams of a certain color. Such an order does not state what size ream they desire, what kind of paper is wanted for a bodystock or what kind of finish is needed. Orders for paper should state the quantity—whether in rolls or sheets—size of rolls or sheets—basis of quantity—manufacturer's sample number if possible—otherwise full details regarding the color, finish, and bodystock. There are many shades of most colors, hence, to say that a red is desired is not specific enough. A sample of the paper desired covers the need if the sample is large enough; this sample should be 8½ in. x 11 in. if possible; a sample ½ in. x 3 in. is so small that the weight of the bodystock cannot be determined.

Difficulties and troubles are frequently encountered because users are not familiar with what different papers will and will not do. The manufacturer can tell what his papers will do under varying conditions if he is asked. Lighter weight bodystocks and bodystocks of least tensile strength cannot be expected to stand the strain and speed of certain machines. All papers will not stand direct sunlight, tarnishing has to be guarded against. Curling cannot be entirely prevented by the manufacturer. Color variation is always present to a more or less degree, and it increases the cost to keep this color variation at a minimum.

Paper Testing Equipment

THE MULLEN TESTER indicates actual bursting strength irrespective of any other factor. It operates on the hydraulic principle, the material to be tested being clamped over an opening in the cylinder which has been filled with glycerine and sealed with a pure gum rubber diaphragm. This liquid is compressed by turning a hand wheel or preferably by motor drive. The latter eliminates any variation of test due to the human element as it is under absolute control. Glycerine is used as it best prolongs the elasticity of rubber.

Rubber, in contrast to the fixed curve of steel or

metal lends itself to deflection and the direct pressure exerted is distributed over the whole area. The Mullen searches out any imperfection or small weak section of the material under test, protrudes into said weakness wherever located and registers the resultant break.

The burst represents what a sufficient strain would do to the material in actual use. It bursts the fibres at the very point of weakness regardless of whether the strain be with the grain in paper or the warp in fabric. The glycerine also acts directly on a pressure gauge of the Boudon tube type which records the bursting strength in standard terms of *actual pounds per square inch.* Where the metric system prevails the gauges furnished show pounds per square inch and kilos per square centimeter. At the bursting point the indicator on the gauge remains stationary, giving a positive record of the exact result of the test. (The indicator remains at this point until being released to zero by a control button.)

Metal Foil in Packaging

By F. H. DREXLER

COINCIDENT with the great increase in packaged products of all kinds has come an increased use of metal foils in packaging. The average person thinks of foil only as "foil," not knowing there are no less than several hundred different grades and types and forms of foil in use, ranging from heavy lead foils (as used for packing tea) to the richly-embossed, color-printed wraps used on fine candies and the ornate covers for fine boxes.

In general, there are five classes of foil, classifying them by metals:

Lead foil	Aluminum foil
Composition foil	Zinc foil
Pure tinfoil	

Each of these grades may again be subdivided according to: Gauge or area; whether paper-backed or not; type of backing, if any.

Foil can be mounted by wax or by odorless, waterproof glues or cement to virtually all kinds of paper: tissues, bonds, parchments, manilas, and extending even further, to paper-board or carton stock from which metal-surfaced or metal-lined paper cartons and containers are now fabricated.

What has brought about the increased use of metal foils in the packaging of all kinds of products? There are three paramount reasons therefor which briefly reviewed are:

Protection. The tough metal sheet is an effective shield against loss of moisture, absorption of odors and deterioration caused by exposure to the air, dust, and sun. Cigars wrapped in foil for 36 years are still fresh, sweet, and smokable. Tobacco is especially sensitive to sunlight, atmospheric conditions, and odors. Knowing this, cigarette manufacturers are among the largest users of foil and it can be said that the huge increase in cigarette consumption is largely attributable to the fresh, fragrant condition in which the foil wrapping has kept them. Chocolate and candy bars, cheese, soap, typewriter ribbons, yeast, chewing gum, butter, are but a few products that also have found foil the safest, surest protective wrapping.

Appearance. What has a brighter, cleaner, more inviting look than shining, silvery foil! It catches one's eye instantly. It advertises freshness. Foil can be beautifully embossed and color-printed. It makes an eye-catching, sales-winning, self-advertising package. Such a package pays for itself in sales.

Cost. Corresponding with each increase in the consumption and production of foil has been a reduction in price that has kept in step with its expanding use. A protective foil package today costs very little, and when one considers the better condition in which his products are kept with the resultant effect on sales, the slight cost is more than offset.

Aside from its utility in packaging, foil has a host of widely varying uses. Inseparably mounted on cardboard it can be made into signs and displays, boxes, fancy neckwear and handkerchief gift folders. Backed inseparably with paper it is used as a wall-covering, in advertising matter, in window decorations and as a decorative covering for fancy boxes.

To attempt to enumerate all of the purposes which foil serves would take more space than is here available. A large foil manufacturer maintains a research staff devoted to exploring new fields for foil as well as to solving specific problems for prospective users. With the almost unlimited number of forms and grades now available, foil's suitability for any given purpose can soon be demonstrated.

Wooden Boxes as Packages

A WOODEN BOX possesses strength and, properly constructed, incorporates most of the structural elements of the successful package. In re-use it is particularly valuable for even a comparatively small box can be utilized as an ideal cigarette humidor or a container for studs, cuff links and many other small articles after its original contents are gone. With the application of certain decorative effects to the outer and inner surfaces of the box, it can comply to all of the essentials of the attractive as well as the practical package. The same effects of beauty in color, design

and neatness can be applied to wooden boxes as to containers made from other materials.

In the lining of these boxes decorative and imitative papers are used, also fabrics such as velveteen and silk, and these are selected with the idea of obtaining harmony or contrast with the exterior design or coloring. Likewise, strap or brass hinges, locks, clasps and other small appurtenances are applied to the boxes and add to their effectiveness and attractiveness. Partitions, as well as removable compartments, may be placed in the original boxes as they are supplied to the purchaser or after the contents have been removed.

With the many possibilities of treatment, both for the exterior and interior of the boxes, there is an opportunity—in considering the use of color as applied to such boxes—to link the contents in a definite way with the package.

Wooden boxes have long been used and highly regarded as containers by several of the packaging groups because of their strength and durability. But with the possibilities offered for the application of color and design to wooden boxes there is a renewed interest on the part of the manufacturer who seeks effective and economical containers.

Roll Leaf in Packaging

By A. A. MORSE

EMBOSSING adds distinction to any package or box wrap. On that point most manufacturers agree. Embossing says to the prospective buyer, "Here is a quality product deserving your attention." This desire to distinguish their products is what prompts most manufacturers of quality products to use embossing on their packages.

There is a distinct difference between gold bronze powder printing and embossing and roll leaf embossing. The first requires three operations: sizing, bronzing, and embossing. Roll leaf embossing, on the other hand, requires but one operation. A roll of leaf is automatically fed across the face of the embossing die. One press operation transfers the foil to the paper and embosses the design at the same time. The resulting impression is clean cut, lustrous, and distinctive. The colors available for roll leaf embossing are imitation gold and silver and a wide range of flat and metallic colors.

In addition to the embossing die, all the equipment needed to produce the most distinctive embossed box wraps are an ordinary platen press of the Laureate or Colt's Armory type equipped with a roll leaf feeding attachment and a heating plate.

Suppose the manufacturer decides to emboss the particular box wrap he is using or intends to use. First the artist goes ahead and makes a drawing in the usual way. If part of the design is to be printed, the printing plates for this part are ordered from the engraver. Next, a brass embossing die is made for the part of the design to be embossed with roll leaf. This die may be a raised or flat stamping die or perhaps a combination of both.

THE PRINTING of the box wrap is next done in the regular way and the wrap is now ready to be embossed with roll leaf. The stamper prepares the make-ready, using a hard board and building up with ordinary gummed paper tape, cutting away with a sharp knife to bring up the force wherever desired. The wraps to be embossed are fed into the press with the same ease and speed as in ordinary printing. A thermostatic heat control keeps the heating plate and die at uniform temperature. Automatic roll leaf feeding attachments enable the operator to feed from one to three different widths and lengths of roll leaf with each impression, which results in considerable economy. It is entirely possible to emboss two different colors in the same operation in some cases. With a criss-cross roll leaf feeding attachment the leaf can be fed from right to left as well as from front to back on any upright power press. In stamping frames for box tops and book covers all four sides of the frame or books can be stamped in one operation.

The development of roll leaf embossing is one of the most important steps in the decoration of packages. Formerly, it was necessary to use flat leaf in individual packs, leaf which had to be cut to the exact size required for each job. This required further operations such as laying on the individual sheet, brushing off and cleaning of the surplus leaf which stuck to the article which was being stamped. Using such methods, a stamper with two helpers could get out about two thousand impressions in a day. But with roll leaf embossing the same stamper without any assistance can produce five to eight thousand impressions per day and at the same time eliminate all laying on and brushing off.

Some of the leading manufacturers of roll leaf and roll leaf feeding attachments maintain service departments which cooperate closely with manufacturers and box makers. A manufacturer who decides to emboss a particular box wrap should obtain the advice of these roll leaf manufacturers as to the type of die to be used and the best methods of doing the work.

Transparent Cellulose Wrappings

TRANSPARENT CELLULOSE wrapping material has been found by manufacturers of countless products to be an effective merchandising aid in protecting those products and improving their appearance.

Such wrappings are as transparent as the finest plate glass. Details of color, size, shape and texture are as visible through them as if the products were unwrapped. Their use provides protection from the detrimental elements which packages meet in their journey from maker to consumer. The wrapping is package insurance for it gives the package an hygienic atmosphere and guards against germs, flies, dust and all sorts of contamination. Transparent cellulose is oil and greaseproof, odorless, strong, pliable, gasproof and is transparent to ultra-violet light. Being made from the finest and purest woodpulp obtainable, it is absolutely sanitary, in fact it is pure enough to eat, though not particularly digestible.

A special moisture-proof wrapping, retaining all the other desirable properties of the regular material, has been developed. It is practically impervious to water vapor and has been found an ideal wrapper for baked goods, sticky or hard candies, fish, dried fruit and cigars, all of which need moisture-proof protection.

A transparent cellulose wrapping lends a sparkling appearance to a package that attracts the shopper's eye and commands attention. Likewise the appetizing goodness of food products is clearly evident through the transparent wrap which gives a quality atmosphere to the product it wraps and makes it ideal for display.

It can be supplied in stock size sheets 40 in. in length and from 31 to 34 in. in width, in sheets cut to specification or in rolls of various widths and weights for machine wrapping or any other use requiring continuous lengths. It can be procured in various thicknesses, embossing and colors as well as the special moisture-proof sheeting. It is approximately 0.0009 in. thick and thicknesses up to 0.007 in. are available if desired.

Such wrapping material can also be fabricated into envelopes, used as a window in boxes and it may be printed permitting the advertiser's trade mark and identification.

Crepe Wadding

CREPE WADDING is extensively used as a packaging adjunct in the packing of tablets, capsules, ampoules, and various pharmaceuticals, cosmetics, bottled goods, scientific instruments, fragile and highly polished specialties. Such wadding to meet the several requirements should be white, soft, of dependable consistency in thickness and grade and be highly absorbent. Crêpe wadding absorbs sixteen times its own weight in moisture. It may be obtained in rolls, sheets, and pads.

For liquids sampling or shipping liquids by mail, domestic and export business, to meet the requirements of the Postal Regulations and the necessities of protection in a high degree, absorbent crêpe wadding is an ideal packing.

This material, provided in various thicknesses and paper backed, ready for use, is also utilized for box top padding. Among the economies which have been pointed out by companies who have used this padding are the following: due to the paper backing and the flatness and uniformity of sheets, it can be readily jogged in a cutter, while most padding has to be laid out separately, each sheet at a time; the paper backing eliminates the need of placing a padding and a manila sheet on separately when they are applied at the wrapping machine.

Two developments in crêpe wadding, of interest to the designer and buyer of packages and supplies, have occurred in the last year. First a new form fancy corrugated wadding has come on the market. Secondly, colors in both the plain and corrugated types. Both developments increase the adaptability of these products from a decorative standpoint to modern requirements in packaging and are bidding for increasing importance of these materials in the industry.

Folding Cartons

By William A. Smith

IN SELECTING THE CARTON for a product there are many important points to consider. Besides providing a suitable container and furnishing protection for the product, the carton reflects the integrity and fidelity of the manufacturer. In this age of mass production, the merging of big industries and the prosperous growth of our country we find a tendency for bigger business coupled with keener competition. The wide-awake and progressive manufacturer perceives this growth and uses every possible endeavor which will lead toward increased profits for his product.

An outstanding factor for the manufacturer who distributes his product in package form to the consumer to consider is the sales appeal of his carton. Too many manufacturers give too little attention and study to their cartons—and here is a field in which the possibilities for improvement are indeed unlimited.

Price consideration is the reason for the mediocre packages which line the dealer's shelves today. Those packages do not move because of the lack of an appetite or sales appeal. But an attractive package is not the secret of bigger business; it is a part of the sales stimulant, for the essential factor is the product.

and neatness can be applied to wooden boxes as to containers made from other materials.

In the lining of these boxes decorative and imitative papers are used, also fabrics such as velveteen and silk, and these are selected with the idea of obtaining harmony or contrast with the exterior design or coloring. Likewise, strap or brass hinges, locks, clasps and other small appurtenances are applied to the boxes and add to their effectiveness and attractiveness. Partitions, as well as removable compartments, may be placed in the original boxes as they are supplied to the purchaser or after the contents have been removed.

With the many possibilities of treatment, both for the exterior and interior of the boxes, there is an opportunity—in considering the use of color as applied to such boxes—to link the contents in a definite way with the package.

Wooden boxes have long been used and highly regarded as containers by several of the packaging groups because of their strength and durability. But with the possibilities offered for the application of color and design to wooden boxes there is a renewed interest on the part of the manufacturer who seeks effective and economical containers.

Roll Leaf in Packaging

By A. A. MORSE

EMBOSSING adds distinction to any package or box wrap. On that point most manufacturers agree. Embossing says to the prospective buyer, "Here is a quality product deserving your attention." This desire to distinguish their products is what prompts most manufacturers of quality products to use embossing on their packages.

There is a distinct difference between gold bronze powder printing and embossing and roll leaf embossing. The first requires three operations: sizing, bronzing, and embossing. Roll leaf embossing, on the other hand, requires but one operation. A roll of leaf is automatically fed across the face of the embossing die. One press operation transfers the foil to the paper and embosses the design at the same time. The resulting impression is clean cut, lustrous, and distinctive. The colors available for roll leaf embossing are imitation gold and silver and a wide range of flat and metallic colors.

In addition to the embossing die, all the equipment needed to produce the most distinctive embossed box wraps are an ordinary platen press of the Laureate or Colt's Armory type equipped with a roll leaf feeding attachment and a heating plate.

Suppose the manufacturer decides to emboss the particular box wrap he is using or intends to use. First the artist goes ahead and makes a drawing in the usual way. If part of the design is to be printed, the printing plates for this part are ordered from the engraver. Next, a brass embossing die is made for the part of the design to be embossed with roll leaf. This die may be a raised or flat stamping die or perhaps a combination of both.

THE PRINTING of the box wrap is next done in the regular way and the wrap is now ready to be embossed with roll leaf. The stamper prepares the make-ready, using a hard board and building up with ordinary gummed paper tape, cutting away with a sharp knife to bring up the force wherever desired. The wraps to be embossed are fed into the press with the same ease and speed as in ordinary printing. A thermostatic heat control keeps the heating plate and die at uniform temperature. Automatic roll leaf feeding attachments enable the operator to feed from one to three different widths and lengths of roll leaf with each impression, which results in considerable economy. It is entirely possible to emboss two different colors in the same operation in some cases. With a criss-cross roll leaf feeding attachment the leaf can be fed from right to left as well as from front to back on any upright power press. In stamping frames for box tops and book covers all four sides of the frame or books can be stamped in one operation.

The development of roll leaf embossing is one of the most important steps in the decoration of packages. Formerly, it was necessary to use flat leaf in individual packs, leaf which had to be cut to the exact size required for each job. This required further operations such as laying on the individual sheet, brushing off and cleaning of the surplus leaf which stuck to the article which was being stamped. Using such methods, a stamper with two helpers could get out about two thousand impressions in a day. But with roll leaf embossing the same stamper without any assistance can produce five to eight thousand impressions per day and at the same time eliminate all laying on and brushing off.

Some of the leading manufacturers of roll leaf and roll leaf feeding attachments maintain service departments which cooperate closely with manufacturers and box makers. A manufacturer who decides to emboss a particular box wrap should obtain the advice of these roll leaf manufacturers as to the type of die to be used and the best methods of doing the work.

Transparent Cellulose Wrappings

TRANSPARENT CELLULOSE wrapping material has been found by manufacturers of countless products to be an effective merchandising aid in protecting those products and improving their appearance.

Such wrappings are as transparent as the finest plate glass. Details of color, size, shape and texture are as visible through them as if the products were unwrapped. Their use provides protection from the detrimental elements which packages meet in their journey from maker to consumer. The wrapping is package insurance for it gives the package an hygienic atmosphere and guards against germs, flies, dust and all sorts of contamination. Transparent cellulose is oil and greaseproof, odorless, strong, pliable, gasproof and is transparent to ultra-violet light. Being made from the finest and purest woodpulp obtainable, it is absolutely sanitary, in fact it is pure enough to eat, though not particularly digestible.

A special moisture-proof wrapping, retaining all the other desirable properties of the regular material, has been developed. It is practically impervious to water vapor and has been found an ideal wrapper for baked goods, sticky or hard candies, fish, dried fruit and cigars, all of which need moisture-proof protection.

A transparent cellulose wrapping lends a sparkling appearance to a package that attracts the shopper's eye and commands attention. Likewise the appetizing goodness of food products is clearly evident through the transparent wrap which gives a quality atmosphere to the product it wraps and makes it ideal for display.

It can be supplied in stock size sheets 40 in. in length and from 31 to 34 in. in width, in sheets cut to specification or in rolls of various widths and weights for machine wrapping or any other use requiring continuous lengths. It can be procured in various thicknesses, embossing and colors as well as the special moisture-proof sheeting. It is approximately 0.0009 in. thick and thicknesses up to 0.007 in. are available if desired.

Such wrapping material can also be fabricated into envelopes, used as a window in boxes and it may be printed permitting the advertiser's trade mark and identification.

Crepe Wadding

CREPE WADDING is extensively used as a packaging adjunct in the packing of tablets, capsules, ampoules, and various pharmaceuticals, cosmetics, bottled goods, scientific instruments, fragile and highly polished specialties. Such wadding to meet the several requirements should be white, soft, of dependable consistency in thickness and grade and be highly absorbent. Crêpe wadding absorbs sixteen times its own weight in moisture. It may be obtained in rolls, sheets, and pads.

For liquids sampling or shipping liquids by mail, domestic and export business, to meet the requirements of the Postal Regulations and the necessities of protection in a high degree, absorbent crêpe wadding is an ideal packing.

This material, provided in various thicknesses and paper backed, ready for use, is also utilized for box top padding. Among the economies which have been pointed out by companies who have used this padding are the following: due to the paper backing and the flatness and uniformity of sheets, it can be readily jogged in a cutter, while most padding has to be laid out separately, each sheet at a time; the paper backing eliminates the need of placing a padding and a manila sheet on separately when they are applied at the wrapping machine.

Two developments in crêpe wadding, of interest to the designer and buyer of packages and supplies, have occurred in the last year. First a new form fancy corrugated wadding has come on the market. Secondly, colors in both the plain and corrugated types. Both developments increase the adaptability of these products from a decorative standpoint to modern requirements in packaging and are bidding for increasing importance of these materials in the industry.

Folding Cartons

By William A. Smith

IN SELECTING THE CARTON for a product there are many important points to consider. Besides providing a suitable container and furnishing protection for the product, the carton reflects the integrity and fidelity of the manufacturer. In this age of mass production, the merging of big industries and the prosperous growth of our country we find a tendency for bigger business coupled with keener competition. The wide-awake and progressive manufacturer perceives this growth and uses every possible endeavor which will lead toward increased profits for his product.

An outstanding factor for the manufacturer who distributes his product in package form to the consumer to consider is the sales appeal of his carton. Too many manufacturers give too little attention and study to their cartons—and here is a field in which the possibilities for improvement are indeed unlimited.

Price consideration is the reason for the mediocre packages which line the dealer's shelves today. Those packages do not move because of the lack of an appetite or sales appeal. But an attractive package is not the secret of bigger business; it is a part of the sales stimulant, for the essential factor is the product.

TWELVE IMPORTANT THINGS to consider carefully in the preparation and the manufacture of a carton are: size and form; attention value; composition; illustrations; color; engravings; reproductions; plate printing; lithography; stock; standardization and circulation.

Size and form. Including the top and bottom, any ordinary carton has six sides for advertising messages. The form or shape should be planned and constructed for the convenience of display and handling. With the same number of cubic inches many different forms or shapes may be obtained—depending upon the product to be packed—being at all times a suitable container for the products as well.

Attention Value. A carton should attract attention. The color scheme and design when properly made should be pleasing and distinctive and the name of the product should be easily read at a reasonable distance. If an illustration is used with other type matter, caution should be exercised in preventing a crowdedness that detracts and is not pleasing to the eye. No one will dispute that Aunt Jemima Pancake Flour and Lux cartons are pleasing and distinctive packages and are recognized at a distance.

Composition. The general balance of design is important. Top or bottom heaviness is dangerous. The eye's most natural follow-through is from upper left down to right. There is no general rule for using the same style of type throughout the design of a carton. The name of a product may be in a block letter and the descriptive matter carried out in another style. Upper and lower case has been found easiest to read. Simplicity is most essential in a good-looking carton. Blank space, copy and proportion are important. The tendency to crowd in too much copy on a carton is a fallacy. Successful manufacturers do not utilize all of the six spaces—in fact, the tendency is toward very little copy.

The name of the product, an illustration, some words concerning the nature of the product, and the name and address of the manufacturer occupy the front. The back is often a duplicate of the front. A few remarks about the preparations or use of the product may be made on the sides while the top may carry the name of the product. If a long list of directions or recipes is found necessary it may be printed on the back of the carton, providing the list is not too long. The most successful way, however, to get your message to the consumer is through an insert placed within the carton.

Illustrations. Illustrations are not merely used to fill space. They play just as important a part in the carton as does the name or the color scheme. There is more reason why an illustration for a carton should be more accurately made than for an ad appearing in a publication—it is a permanent trade mark for the product. When planning a carton for a product the best artist should be called in for consultation. Technique for carrying power should be considered before a selection is made. Mistakes are too often made by the execution of a very effective illustration but this effect is lost at a short distance from the eye. It is a mistaken idea that it is necessary to use four or more colors to get an effective illustration. Many striking effects are produced in few colors.

Color. Surely among the many thousands of color shades one can readily find a pleasing and distinctive color combination. We of course receive all our basic color combinations from the primary color scale. To place together just the right color combinations is no simple task and it should be left to one who understands harmonies in order to receive a successful result. Bright colors are always favored because of their carrying power. Clean and brilliant colors play an important part in making a carton attractive. They have a tendency to give one the impression of freshness and quality, whereas the dirty and dull colors give the impression that the goods are old and shopworn.

To bring life to dull colors they should be varnished. Price-mindedness has been the cause of many poor-looking cartons. The printer, lithographer or boxmaker give you just what you pay for. They have their standard color combinations and when it is a cheap carton they place this on their standard color combination together with others of a similar nature and as a result your carton has the same look as a hundred others. There is nothing distinctive or attractive. It is just another carton.

It is true that a special color combination costs more money but that is only true when a small quantity is wanted. It is a far better policy to pay a little more money in the beginning for an attractive and distinctive carton, than it is to pay little money for a carton with the idea that it is only a container for the product.

Engravings. There are two distinct processes of engraving commonly used in the manufacture of cartons. One is used by the plate printer and the other by the lithographer. Original engravings when made for the plate printer should be deeply etched and mounted on heavy metal instead of wood to assure sharpness in the making of electros from which to print the edition. The original engravings should never be used for printing purposes. Many expensive engravings have been ruined to save a few dollars.

On account of the chemical process of the lithographer it is difficult to have engraving plates made by any person other than the lithographer who is to print the cartons. Thus it becomes necessary to furnish the lithographer with the complete sketch together with possibly a set of working drawings. When making a proof by either the plate printer or the lithographer it should be made on the same stock as will be used on the completed edition.

Reproductions. The most successful reproductions are made from sketches or original working drawings

that are approximately one third larger in size. Drawings that are too large usually lose a great deal of character. To receive the best results from your design it is best to consult your printer or lithographer before attempting to make working drawings or engravings. When half-tone screens or Ben Day tints are wanted it is important that the stock on which the job is to be printed is carefully considered because the size of screens are determined by the printing surface of the stock.

Plate Printing. Many a carton job has been ruined by poor registration, not because it was the fault of the printer, but because the printing plates were not made practical. To correct a situation of this kind is to begin with the making of the original sketch. Before undertaking the execution of a design consideration must be given to the preparation of making the plates in a practical way so that printing therefrom on the presses can be done with as little trouble as possible. Fine thin outlines around a color or a fine line as a border too close to the score lines are impractical and dangerous. This also applies to the lithographer.

Lithography. Within the last few years the offset press has made it possible to reproduce some colorful subjects on cartons. Some of the most attractive cartons are made on these presses. This press prints on any kind of stock, rough or high coated, and excellent results are obtained. Sharpness of lines and accurate reproduction of pictorial subjects have been successful. When a dull or rough finish is wanted the offset press does an excellent job.

Stock. There are many classes of carton board. The most commonly used is the clay coated, either news or manila back, and patent coated also with news or manila back. The clay-coated stock has a superior printing surface and is used for high grade cartons. When a bright white surface with little printing or ink is desired the clay coated will be chosen. The patent coated is mostly used for the average carton. The manila-lined is a better bender at the score lines than the news-lined. The selection of a proper board and stock with the right thickness is important in making a good carton. Some products can readily use different surface board as well as different thicknesses, even though the carton is of the same dimension. A board of the proper thickness to protect the product should be chosen. Both the clay coated and patent coated run in thickness from 0.012 to 0.040. Some mills go as far as 0.050 although the 0.050 is not practical to run through the average printing press unless it is specially built for that purpose.

Standardization. Continuity of design and standardization of color scheme is being considered more and more by the manufacturer today. It establishes a trade mark color and can be easily recognized by the consumer as belonging to that particular manufacturer. There are many such examples on the market today and they have had marked success. For an example, the Taylor Instrument Co., manufacturers of the Tycos thermometer, have four brand names, namely, Tycos, Taylor, Advertising and Common. Each one of these brands has a different color scheme but carries the same general design for all brands. The Tycos brand, or first grade, has a cream over-all color. The Taylor brand, or second brand, has a light green over-all color; the Advertising brand, or third grade, a bright red over-all color; the Common brand, or fourth grade, a brown over-all color. All thermometers made under each of these brands are placed in their proper color cartons. The stock clerks, the dealers and the salesmen find this plan to work out successfully. Had the Taylor Instrument Co. used the same color scheme for all brands this would not have worked out so well. In considering standardization it is sometimes advisable to divide the brands or groups into different color schemes.

Circulation. Many manufacturers realize that they have a potential market for introducing a new product through one of their cartons. A booklet, folder or coupon, either attached to the carton or placed inside of it, reaches the consumer with no cost to the manufacturer. Briefly the carton has many possibilities in helping the manufacturer to greater sales. To make an attractive and sales-appeal carton requires the same attention and study as the product itself.

The carton selected for any product should serve four purposes: first, it should provide a suitable container for the product; second, it should protect the product; third, it should be of such form and shape as to make the product convenient to display and handle; and fourth, it should help sell the product. Not one of these four factors can be overlooked when selecting a suitable folding carton for any product. Ordering cartons of the wrong size often causes considerable waste. One means of overcoming this is to furnish the carton maker with a blueprint showing the size and shape required. A limited number of blank cartons can then be made up and tested on the filling and sealing machines to make sure they fit properly.

Acknowledgements

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Arthur S. Allen, American Can Co., Anchor Cap & Closure Corp., Arabol Manufacturing Co., Battle Creek Wrapping Machine Co., Bemis Bros. Bag Co., Brown Bag Filling Machine Co., Burt Machine Co., Butterfield-Barry Co., Celluloid Corp., Central Waxed Paper Co., Arthur Colton Co., Consolidated Packaging Machinery Corp., Crescent Engraving Co., Crompton-Richmond Co., DuPont Cellophane Co., Inc., Eco-

(Continued on page 57)

Specifications—Cartons and Display Containers

By Arthur J. Weiss

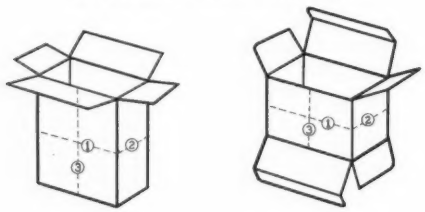
DUE TO THE LACK of uniformity or standard method of specifying the dimensions of a folding carton, causing frequent misunderstandings and errors in the Industry, the Paperboard Industries Association adopted at a meeting, held on May 21, 1930, a simplified standard for stating the three dimensions of a folding carton.

Shown below are diagrams indicating, by number, the sequence in which specifications are to be presented, thus, in the case of either carton or counter display container, the following will apply:

1. The larger dimension at the opening.
2. The smaller dimension at the opening.
3. The third remaining dimension.

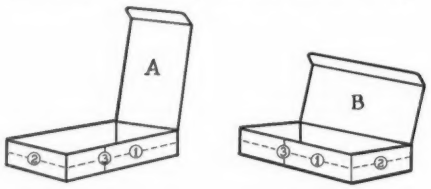
All measurements are understood to be from center of crease to center of crease.

SEAL END CARTON
REVERSE TUCK CARTON



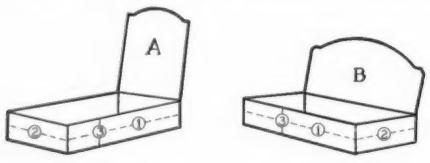
ONE PIECE BOXES WITH COVERS

State whether or not cover extends from first or second dimension. (That is, whether like A or B).



DISPLAY CONTAINERS

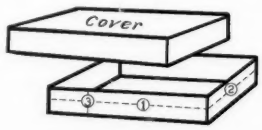
State whether or not display panel extends from first or second dimension. (That is, whether like A or B).



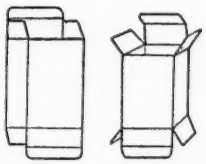
Adherence to this rule will greatly facilitate mutual understanding and tend to make uniform system in the entire folding box industry.

TWO PIECE TELESCOPE BOX

In two piece boxes dimensions of bottoms are given.

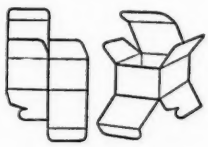


REVERSE TUCK CARTON



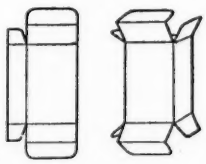
Popular style for low-priced candies, toilet and pharmaceutical articles, extracts and other products. Easily set up by hand, and may be packed automatically. Conveniently opened and closed for removal of contents, as used. Economical in manufacture because cartons interlock.

REVERSE TUCK CARTON WITH ARTHUR LOCKS



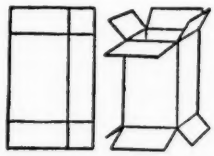
Same as reverse tuck, except bottom side flaps lock to prevent heavy contents from falling through bottom. Used principally for packing jars and bottles containing toilet preparations, medicines, condiments, and other heavy articles. Sometimes made with Arthur side locks both top and bottom, to hold flat round jars and similar objects securely.

STRAIGHT TUCK CARTON



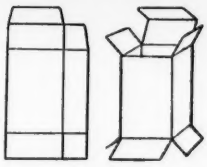
Has no advantage over the reverse tuck carton except that it is required for operation on some automatic machinery. Must be made with right and left glue seams to secure the economy of interlocking in manufacture. This is not desirable because on half of a run of cartons the rough edge of the glue seam shows at the front of the box.

SEAL END CARTON



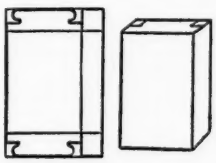
The most popular style carton for packing flour, cereals, sugar, salt, teas, coffees, spices and many other food products, soap powders and other cleansing preparations. Difficult to seal by hand; but packed and sealed on automatic machinery, it reaches the consumer with the contents untouched by human hands.

SEAL BOTTOM, TUCK TOP CARTON



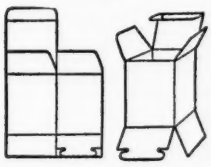
Handy as a pocket package for cough drops and small candies. Has the advantage of the solidly sealed bottom and the convenience of the easily opened and closed tuck top for the free use of the contents. Packed on automatic machinery. Not adapted to hand packing.

GREENLEAF CARTON

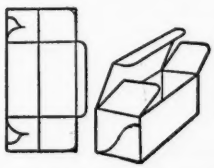


Locks at each end securely. Extensively used for packing dried fruits and other heavy or bulky food products; also as shelf containers holding individual packages in sales units.

TUCK TOP, GREENLEAF BOTTOM CARTON

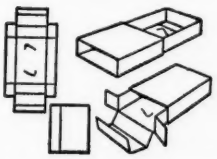


An adaptation of both styles, permitting the security of the greenleaf lock on the bottom and the convenience of the easily opened and closed tuck top. Used for the larger candy packages, heavy food products, shelf containers and many other purposes.



COLONIAL LOCK BLANK

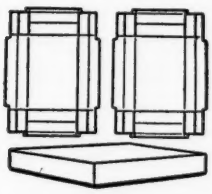
A folding blank, supported when set up by interlocking hooks and catches, requiring no gluing either by the box manufacturer or the user; very economical because of sheet layout. In universal use of biscuit and cracker manufacturers and is generally enclosed in a sealed, printed wrapper.



TUBE AND SLIDE BOX

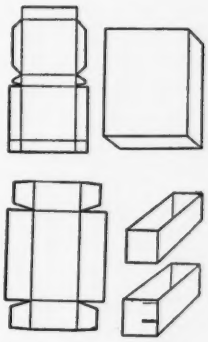
Consists of a folding blank variously contrived, to be inserted in a tube. Its two-piece construction makes it substantial enough to be carried without damage in the pocket of the consumer. It permits the easy removal of one article without spoilage of those remaining. It is extensively used for cigars and cigarettes.

TWO-PIECE PROSPECT BLANK



Two-piece box made up of blanks folded by hand. The ends overlap and are held against the side by friction. The cover may be made full or part depth and the blank glued at the side affords additional reinforcement, a recent development of the overlapping end blank in which an extra tab is provided as an extra protection at the corner. A similar reinforcement along the sides can be provided without the necessity of preliminary gluing. This style is the most recent development of the hand assembled telescope box. It has many decided advantages in the textile industry, where it may substitute for a solid box.

BRIGHTWOOD BLANKS

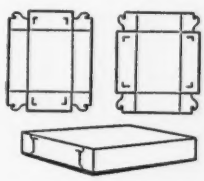


Brightwood machinery is installed in the user's plant for the sake of setting up and gluing two styles of blanks.

The one-piece blank is folded and automatically glued along the vertical panels by a carton forming machine, which automatically fills and seals it. It is necessary for the user to have sufficient production to gain the economies made possible by the automatic equipment.

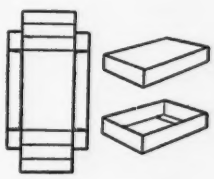
The two-piece style machine is fed blanks which are automatically glued into box and cover. The types are various—the cover may fit over the box to its full length, or only part way.

TWO-PIECE HOOK CATCH BLANK



An economical style of telescope box, in which hook catches at the four corners hold the box and cover in place; very economical to manufacture, but difficult to set up. This style is not sufficiently durable to stand transportation or rough handling, but is a particularly suitable box for the clothing and florist industries.

TWO-PIECE FULL TELESCOPE OVERLAPPING ENDS CARTON

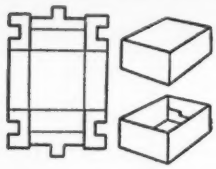


A good substitute for a solid box—is economical to manufacture, easily set up by hand, and makes a very neat, substantial package. It is used very frequently for candies, also for dry goods, clothing, etc.

POURING SPOUTS APPLIED TO SEAL END CARTONS

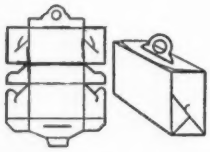
There are a number of different devices applied to the top panel of an ordinary sealed carton to permit of easier access to the contents, but one of the most unusual is the one illustrated. The pouring spout is fashioned from the top flaps of the carton, and when properly operated by the housewife, is formed into a spout which may be opened and closed at will. Patented.

TWO-PIECE OVERLAPPING BOLT END BOX



This box is very secure. It is used extensively for packing hardware and other heavy matter where the added strength of the full telescope feature is desirable.

THE SATCHEL PACKAGE

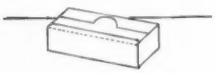


A folding blank similar to the Colonial lock blank, which is held together by interlocking hooks and catches fitting together on the side panels. This box has the additional feature of a patented tongue and a handle which helps to secure the cover and economically substitutes for the tape formerly used.

TRANSPARENT CELLULOSE WINDOWS APPLIED TO ORDINARY CARTONS

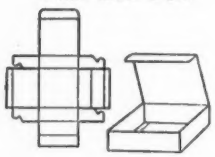
Manufacturers of candies, cakes and other products usually bought on sight are desirous of having their folding cartons made with a window to reveal the contents. Formerly, gelatine was used, but of recent years transparent cellulose has made rapid strides and is often used in its place.

BROAD-WAY OPENER BOX



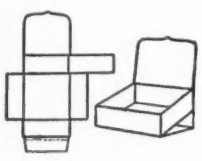
A new development in cartons that permits of inexpensive automatic filling through the ends of the cartons after which the ends are sealed and the box is opened the broad way, hence the name. This box may be also finished to form a counter display container without impairing the economical filling operation. Patented.

ONE-PIECE OVERLAPPING END AND FRONT AND DISPLAY BOX



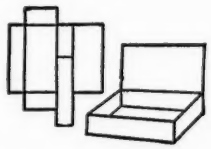
Economical to manufacture and extensively used for display purposes, this box has the added strength of the overlapping front which is not provided in the straight front box. The box can be made with panel-fold style display top, making possible the economy of printing on one side only.

TINSLEY COUNTER DISPLAY CONTAINER



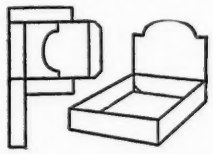
A box of patented design, so contrived that the cover, folding under, proves an easel support to display the goods. A remarkably successful type of display box because of its simplicity in construction, its ease in setting up, and because it has sufficient strength to act as a combination carrying and display box. It is susceptible to fine printing, required on one side only. The display panel is held at the proper angle by a supporting flap. Much of the universal success of this box is due to the fact that it is easily converted from a carrier to a display container by the retailer.

CLIMAX COUNTER DISPLAY CONTAINER



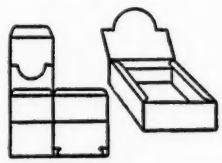
Very simple to set up. Lies flat on the counter. A protective cover is necessary, making the box more expensive than the panel-fold which has no cover. Requires printing and coating one side only. Display panel is equipped with supporting flap.

PANEL-FOLD COUNTER DISPLAY CONTAINER



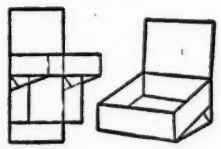
Simple in construction and setting up. Cover is so arranged as to make an attractive display panel. Protective cover is optional. Stands flat on the counter. Requires printing and coating one side only.

PANEL-FOLD CONTAINER WITH LOCK BOTTOM



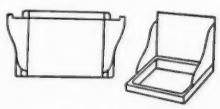
Similar in general appearance, to the panel-fold, except that the locking device is on the bottom. This makes possible gluing of box on automatic machinery, with resultant speed and economy.

SIMPLEX COUNTER DISPLAY CONTAINER



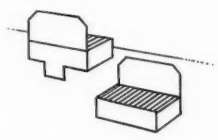
Simple to set up. Special easel feature permits tilting at different angles. Principal feature is simplicity with which dealer may display the goods at an angle. Protective cover is necessary. Requires printing and coating one side only. Display panel is equipped with supporting flap.

FIVE PANEL COUNTER DISPLAY CONTAINER



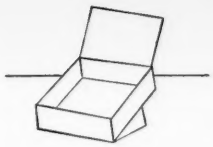
Old established style still in limited use. Requires printing two sides and coating two sides. Somewhat difficult to fill, since the packer must insert goods from side. Lies flat on the counter. Display panel is equipped with supporting flaps.

TILTING DUMMY DISPLAY



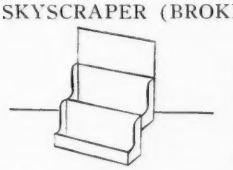
Excellent for perishable articles, like cheese and butter. Shows replicas of the individual packages, but does not hold any goods. Automatically set up by dealer as he places in the side tucks, an economical and attractive display.

ROSE DISPLAY CONTAINER



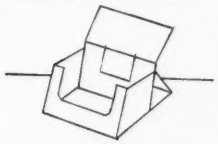
A very effective blank and one of the leading types of display containers. The cover section forms an easel, and is very readily transformed from a shipping box to a tilted display box by the storekeeper. It does, however, require printing on both sides of the board.

SKYSCRAPER (BROKEN BACK)



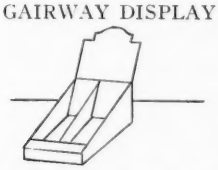
A recent addition to the field of counter display containers which displays contents in two tiers and stays on the counter in an upright or "skyscraper" manner rather than the familiar long horizontal shape. Some are made with an easel in the rear to hold the second tier in a raised position. Patented.

DARRAGH DISPLAY CONTAINER



Another recent addition to the display container field, the main feature of which is that the contents when loaded for shipment are in an upright rectangular position, but when the box is set up for display, the contents are thrown to a stacked position and make a very attractive appearance on the counter. Also, the box is so constructed that the display panel is held in a certain position more or less rigidly and does not flop forward or backward as do so many containers.

GAIRWAY DISPLAY CONTAINER



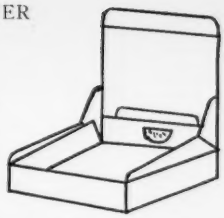
An effective new type of display container in which the individual contents are packed in a staggered manner for better display. Particularly useful for fragile packages put out in glassine bags. Very easy for the dealer to sell, and the contents are kept in tidy position while on the display counters. Patented.

DISPLAY DISPENSER

A new departure in counter display containers. Instead of the conventional type of display container which shows goods on display with the display panel in the rear, this container has the display panel part way back. In front of the display panel appear several of the articles on display (see left illustration).

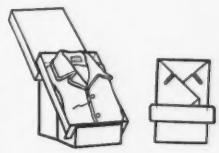
The bulk of the product is packed *behind* the display panel (see right illustration) making for convenience of the store clerk. The unsightly appearance of half-filled containers is avoided. This container is always orderly until the last package is sold.

BROOKS' DISPLAY CONTAINER



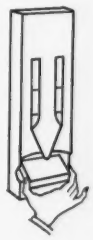
A counter display box complete in itself; that is, no protective cover is necessary. The box is equipped with a tab at the rear of the goods which the dealer elevates and secures in the rear panel. This throws the goods on display to a desirable angle.

BETTER-VIEW DISPLAY STAND



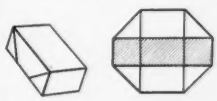
A simple collapsible contrivance used for counter or window display of a two-piece telescope box. Usually made so it will fit within the box. When erected it shows the bottom with the contents showing at an angle, and the cover behind it. The cover is used as a display panel. Makes a most effective window display at little cost. Illustration on left shows the stand in use; illustration on right shows it collapsed for shipment.

SELF-SERVICE CONTAINER



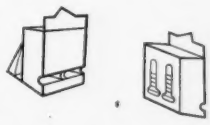
This high, narrow type of container, designed to occupy the minimum of space on especially crowded counters, utilizes the same "automatic" vending machine principle which piles up a single row of packages, providing an opening at the bottom through which a package may drop or be withdrawn. Fits into odd nooks or corners, or may be hung from a nail on a shelf.

TWO-PIECE FULL TELESCOPE COLLAPSIBLE BOX



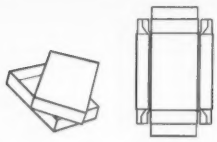
These boxes are glued in collapsible form and shipped to the user in that manner. The user merely pulls them open and the boxes are then ready to be filled. The illustration on the right shows the box in collapsible form, as it is shipped; and the illustration on the left shows the box after it has been set up and filled. The great advantages of this box are that no setting up machinery is required and it is inexpensive.

GRAVITY DISPENSER



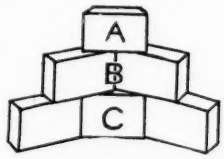
Another type of dispenser which can be equipped with separate dividers when two or more rows are desired for a greater advertising surface. This container can be designed to any desired tilt, and can also be equipped with an easel when the container becomes topheavy. The container also has a sales thermometer in the rear to show when to refill and also to aid in serving from the rear.

TWO-PIECE FULL TELESCOPE BOX



A comparatively recent and important addition to the types manufactured by the folding box industry. Its particular advantage is that it is shipped to the user's plant in flat, knocked-down form and set up by the user at his will. The transportation and storage of empty set-up boxes is obviated, and many progressive manufacturers are turning to this type of box. The corners are particularly strong and the box can withstand a great deal of stacking stress. It is made with reinforced side and end walls in a variety of types. This box is set up on automatic machines, or on hand setting-up machines. The illustration on the left shows a blank in knocked-down form as it is shipped to users; and the illustration on the left shows the box after it has been set up on the machine.

GIANT PYRAMID WINDOW DISPLAY DUMMY



An effective window display in pyramidal form made up of three folding boxes: A, B and C joined together. Distributed in knocked-down form. Easily erected and very stable. The whole unit may be moved from one position in the show window to another without disturbing the form of the display in any manner.

Folding Boxboards

By L. A. Stauderman

THE HIGHLY TECHNICAL PROCESS of manufacturing folding boxboards is sometimes inexact in its results, not because of any deficiency in the chemistry or the mechanics of the processes, but because of the variability of the material used. When Turkish fezes were culled from the Oriental rags that flowed into the paper mills in the Eighties, we had a very uniform furnish for the paper machines, and the famous Turkey-red boxboard brightened new systems of packaging that were coming to the surface. But rags have long since become too precious and the demand for vehicles for merchandise made of folding boxboard have grown too enormous to be fed by Fourdrinier machines from a rag base. And, with the passing of ships, East Indian hemp, salvaged from the cordage of the waterfronts, further contracted the supply of base material, which diminished as the ever-increasing clamor for folding cartons, containers, and corrugated and fibre shipping cases swamped old methods. New, economical and varied boxboards for packing merchandise, made of more abundant base materials, worked on wider and more rapid paperboard machines, grew, perforce, of necessity.

Chemical wood pulp and groundwood became the base. Methods for making some flexible strawboard pried in just ahead of the introduction of groundwood, the promoters being enticed by the superabundance of wheat straw in the Middle West, an insignificant amount of which was used in making butcher's straw paper. After considerable revision of the machine processes, this nine point material developed a range of from sixteen to thirty points, and this was used exclusively in the manufacture of stiff boxes. Rich in cellulose as straw is, its fibre is extremely short, and the board made of it was scored instead of creased, which made it serviceable for boxes with pasted wraps or labels. Therefore, in the Seventies they were still using so-called manilas with a surface variously lined or left natural in the manufacture of folding boxes.

Chemical wood pulp, which is the essence of modern boxboard making, is used in diminishing degrees as an efficient revitalizer of the waste paper stock that goes into the boxboard mill's beaters. It imparts strength, flexibility, and character to a product otherwise constituted of partly exhausted material. But the waste paper stock of one locality, or of one season, is not that of another. Left-over issues of newspapers, discarded magazines and the unsuccessful creations of aspiring authors find final serious usefulness in the scientific transmutation of "paper stock" into pulp. This mass of "paper stock," with its contradictions in quality, is sorted, to be sure, but some of it has undergone a previous reincarnation and is enervated. It gets its right to exist in bending boxboard through the sulphite or sulphate which restores the strength of the mass as a tonic. It comes out strong and as uniform as possible, or, perhaps, as necessary —certainly more uniform than the price generally obtained for the product deserves—but the old standards have been changed. And it is here that the interest of the buyers of folding cartons and other paperboard merchandise vehicles sometimes need knowledge.

Last summer the writer visited many boxboard mills and carton manufacturers in Italy, France, Germany, Sweden and England. In comparison with the employment of the folding carton in the United States, its use in the merchandising systems of Europe, with the exception of England, is small. The corrugated case and fibre container are in a stage of prolonged infancy. In the United States about seventy pounds of paper, in its various forms, is consumed per annum by every man, woman and child constituting its population; in Europe less than thirty per cent of this

quantity is used per capita; consequently, there is little "paper stock" available for the beaters of paper mills, although in England it is otherwise, as is attested by the numerous barges loaded with mixed waste moving up the Thames from London. However, groundwood for the body of the boxboard and as good a sulphite liner as is required for bending provides the furnish for folding boxboard in European mills. The uniformity of this base material results in a smooth, unvarying sheet—uniform as to color, texture and bending properties, but, as we all know, the frailty of the body of boxboard made of groundwood soon demonstrates itself by bursting through the thin armour of sulphite, and this composition would not stand the heavy service expected of folding cartons and containers here. The virtues of the groundwood and chemical pulp combination, which in this country would be out of reach in cost, is less practical for our wide distribution and varied purposes than the type of boxboard we use, which lacks the unformity and certainty of finish and is harder to match as to color than the product of the slow, narrow machines used abroad.

THE MANUFACTURE OF BOXBOARDS, from the bottom up, is becoming more scientific every day. Naturally, it is becoming more standardized as it becomes more scientific. Manufacturers are vying with each other in incorporating their own secret moisture-proofing ingredients. A few have promoted, at great expense, a greater degree of protection against atmosphere from both angles, to prevent evaporation of moisture and to prohibit its absorption by the contents, through refining processes of asphalt. This is being carried forward in folding cartons and in corrugated shipping cases. Asphalt, which is the most ancient and dependable, but too often recalcitrant, medium for the purpose has, and still is, keeping experimentalists busy. It is not the medium, it is the control that engages the interest of the paper maker. Transparent cellulose as a liner is one of the latest steps, it being considered superlative to accepted barriers of grease, moisture and atmosphere. Its increasing use has put a defensive spur to the producers of the more opaque competing products, with interesting results in the offing. Being impervious and transparent, this cellulose provides a fine covering for the open-window box.

Folding cartons are often ordered of boxboard of odd thicknesses. Seventeen point, nineteen point, twenty-one point, and so forth. This is a development of the slight, unavoidable variations that attend boxboard making. The original intention was to produce thicknesses of even number: sixteen point, eighteen point, twenty point, and so on. Sixteen point was, by general consent, allowed to fade out because of its uncertain security except in small cartons. It was unsuitable from a mill production standpoint. The buyer of folding boxes, sensing a supposed advantage in heavier boxboard, picked the one that calipered thickest when inviting estimates and compared the price with the thinner legitimate goods. This practice does not prevail today. The buyer has knowledge and orders what he wants, but the old habit developed a mixture of thicknesses and considerable confusion. The general inclination is to order thicknesses of even number.

The economical importance of standardizing grades arises in the complications that attend short runs on boxboard machines. The transition from one grade of boxboard or one caliper to another on a boxboard machine develops an ascending production cost. The normal line on a mill's tonnage chart is nearest maintained, but never fully realized, if grades and thicknesses follow through consistently and manufacture is not repeatedly shot by switches from light to heavy and from one grade to another. This happens when delivery demands are unreasonable and imperative without realization of the buyer of the consequences at the machine's side.

A good smooth finish is essential to fine printing. A neutral white liner preserves the brilliance of inks. However, the felts of paper machines are bound to wear. This affects the surface finish to be preferred. The maintenance of a good average finish by a boxboard mill depends somewhat upon the mill manager's sagacity in selecting felts, but largely upon his disposition to penuriousness in stretching out their life. The temptation to do so suggests itself by the low prices obtained for the product, but the mill manager has cultivated the sales angle and the fortitude with which to resist—at least some have.

PAPER MAKING is a fine art with a long and interesting tradition. Until a few years ago it was a family craft and the old line paper makers were proud of their clan; therefore, there was some moral suffering in the adjustment they underwent in serving both craftsmanship and the demands of competition.

The color of boxboard liner is a consideration in printing. When manila lined instead of white lined boards are used, one is safe with solid colors, which print, uninfluenced by the underlying surface. Tints or transparent colors are less amenable to such backgrounds and their preciousness is only protected on white. This is subject to discretion, however, as we are leaning toward maximum results and there is much that is desirable between these and the minimum. But when a gay sketch is shown on a white background and economy demands the purchase of manila lined boxboards, the preservation of the colors in printing should not be expected. The question is one of the degree of excellence desired and the buyer's inclination to pay for it.

While the adaptation of the folding carton to the various processes of automatic filling is a little apart from the subject, it cannot be separated entirely. The carton's form must be accurate to serve uninterrupt-

edly on the filling and sealing machine, but behind this, the composition of the boxboard determines whether production is smooth or impaired and wasteful. The proper character of the boxboard gives the carton its necessary flatness. It must be immune from the changes of atmosphere, and here the quality and the method of sizing the boxboard is the responsible factor. It should be snappy and susceptible to decided creasing, with the bents holding firm.

The immense interest of the consumer and the serious concern of the promoter of frosted, frozen and refrigerated food products quickly involved the folding carton manufacturer and the boxboard mill. This far-reaching innovation in merchandising came upon the stage rather suddenly and forecast an astonishing future in food distribution. The chemists and boxboard technicians of the industry are concentrating upon the production of a material that will stand all the tests, and a few are not far from realization. The carton maker is thinking out a magical receptacle made of this super-stock, in which economy will embrace utility.

Nomenclature of Set-up and Folding Boxboard

BOXBOARD as used in the commercial lines is divided into two classes: set-up boxboard and folding boxboard. Both products are manufactured on the same machine, the difference being that created by the raw materials used in each in the process of manufacture. Briefly the two products may be described as follows:

Set-up Boxboard. The commonest form of set-up boxboard is known as chipboard. Next in quality is newsboard. These are the two basic boards for practically all ordinary set-up box work. Chipboard is made from mixed papers commonly known as paper stock. Solid newsboard is made from newspapers and is therefore a cleaner and more uniform product. Newsboard is also made with a chip center. However, to all outward appearances it is still newsboard.

These boards are packed in 50-lb. bundles, and the thickness of each sheet is dependent upon the number of sheets in the bundle. However, both chipboard and newsboard may be ordered in various finishes; for instance, both products are sold in a dry finish and water finish, the dry finish meaning the surfaces are free from a high finish, and the thicknesses are termed rough, medium or two-dry and three-dry. In the water finish they run 2, 3, and 4. The two-water finish is not necessarily a smooth board; the three-finish is considerably smoother, and the four-water finish is about the smoothest that chip or newsboard is made.

Folding Boxboards may be classified as follows:

Bending chipboard is made of mixed papers, but the two surfaces contain fibrous products, such as manila clippings, jute liners and old corrugated boxes. This is the commonest form of bending board.

Next is single manila, which is either a chip or a newsboard with a percentage of unbleached sulphite on one surface, thus making this surface a cream color bending board. Next comes bleach manila with either chip or news back, the surface being made from soft white shavings and bleach sulphite stock. The sulphite, a more expensive product, produces the bending quality.

Patent coated is produced with a news-back, the surface being made from hard white shavings and bleach sulphite. This board is used for higher grade folding boxes, either printed or lithographed.

Folding boxboards are made on a water finish, and are produced on a basis of from 1800 to 2200 points per bundle, according to the finish required. In the very common grades of folding boxboard for suit boxes and shipping containers, there is the mist board which is practically a single manila lined furnish, except for the mist colors, which can be made according to specifications.

There is jute lined board, which might have a chip back and the brown surface is produced from the use of boiled wood, and finally container board, which runs 60-, 80- and 100-points. This board is a chip center with a 16-point jute liner pasted on either side. The jute liner having considerable fibre, gives this board its bending qualities.

Tables for Figuring Boxboard

(*Continued from page 13*)

GAUGE LIST NO. 3

For solid news and solid wood pulp board

Basis 26 x 38	No. 1 Finish Thick to No. and Rough	No. 2 Finish Medium	No. 3 Finish Thin to No. and Smooth	No. 4 Finish Extra Smooth
No. 40.....	.063	.060	.055	.050
" 45.....	.056	.054	.050	.045
" 50.....	.050	.048	.044	.040
" 55.....	.046	.044	.040	.036
" 60.....	.042	.040	.037	.033
" 65.....	.039	.037	.034	.031
" 70.....	.036	.034	.031	.029
" 75.....	.033	.032	.029	.027
" 80.....	.031	.030	.027	.025
" 85.....	.029	.028	.026	.023
" 90.....	.028	.026	.024	.022
" 95.....	.026	.025	.023	.021
" 100.....	.025	.024	.022	.020
" 110.....	.022	.021	.020	.019
" 120.....	.021	.020	.019	.018
" 130.....	.020	.019	.018	.017
" 140.....	.019	.018	.017	.016
" 150.....	.018	.017	.016	.015

(*Continued on page 56*)

Uses of the Paraffined Carton

By M. DALE OGDEN

PARAFFINED CONTAINERS are being used extensively every year for packaging butter, ice cream, oleomargarine, meat products, nuts, etc., because of a definite service that waxed cartons perform for these and like products. An outstanding example is shown by the increased sale of print butter in paraffined cartons. To one not conversant or directly concerned with the uses of the paraffined container, the thought that first comes to mind is of the butter and ice cream cartons. It is true that the dairy industry represents the principal market for paraffined containers, but it is likewise true that many wax-treated containers are being used every year for various other products.

It was about seventeen years ago that a waxed carton, designed to be used as a butter container, first came to notice. This was made of manila board and plain type adorned its sides and ends, proclaiming a brand name and description of contents. Since this commendable advance, though comparatively crude method of packaging butter prints, rapid changes and improvements have been made in the process of manufacturing the paraffined carton.

The first and foremost function of a paraffined container is to afford moisture-proof protection. While maintaining and protecting the moist product which it contains, the penetration of moisture through the carton walls from the exterior is also prevented by its use. The packaging of cheese represents an example of the former; the storing of products in a moist atmosphere, such as iced refrigerators, an example of the latter. The paraffined carton performs another function in its ability to protect contents against contamination by foreign odors. Butter, lard, oleomargarine and like products have an affinity for taking up odors from vegetables, fish, and so on, that may be in close proximity. We might say, then, it is one of the virtues of the paraffined container to maintain the original sweetness and purity of a product as when it was first produced. These main features, plus the sanitary handling that is afforded from exposure to dirt, etc., put the paraffined container in position to perform a valuable service for the group of products to which it is adapted.

The wax treatment that was given the first paraffined carton was secured by applying hot paraffine to the surfaces of the container, then cooling by a blast of air. The same process is still followed with the use of improved machinery. This "hot wax" treatment may be recognized by the dull finish it gives to the container.

In later years the "hot wax" treatment has been replaced to a considerable degree by the popularity and attractiveness of what is termed as the "high gloss" finish, or "cold wax" treatment. This particular treatment is accomplished by the quick immersion of cartons, printed and cut, into a bath of hot paraffine which is maintained at a fixed temperature. Following this, they are immediately chilled in a bath of ice-cold, pure, flowing water. This process not only makes for an improved appearance of the carton itself compared with the old-style, dull-finished job, but it likewise affords speedier production. The "high gloss" paraffined carton gains its name from the bright, reflecting, paraffined surfaces of the container. This method of waxing cartons after they have been cut insures paraffine being applied to the edges as well as surfaces of the carton and prevents moisture being absorbed by the carton board in any way. This is mentioned to illustrate an improvement in manufacturing over a process once followed in cutting and scoring cartons after they had been printed and paraffined.

WITHIN THE LAST THREE YEARS a new process of paraffining containers has come into use which is known as the wax saturation process. This is a treatment adaptable for pure solid sulphite carton board. The paraffine is impregnated into the fibres of the carton stock, leaving no wax on the surface. The hot wax and cold wax treatments just described are both methods of applying paraffine to the surfaces. The printed design of a package is not interfered with by the wax saturation treatment; rather it is enhanced since a certain transparency to the carton stock is obtained. A product is given the same protection against moisture and other exterior elements by this process as in the hot wax or cold wax treatments. There is an additional factor in that the container may be handled without any possibility of any exterior paraffine being rubbed off on to one's clothing, or being scraped off in contact with the product.

A few words regarding the gluing of paraffined cartons. The first paraffined containers were waxed "in the flat" and remained so until they were wrapped about the print of butter, brick of ice cream, or whatever product they were intended to protect. Later it became desirable, as well as necessary, to produce a paraffined container that was glued along one side and with flaps that would tuck in at both ends. Several years of patient research and experiment were required before a dependable machine was developed that would perform the operation of folding and gluing a paraffined carton. The problem encountered lies in the fact that glue will not adhere to a

paraffined surface. So that it was necessary to remove the paraffine from certain portions of the container preliminary to a gluing operation. A machine was finally perfected whereby paraffine is removed on certain surfaces of the carton, water-proof glue applied and the carton folded into shape so that the glued surfaces might adhere to each other.

With the widespread popularity of containers with a paraffined treatment, together with the many new uses to which they are being applied, it is natural that the past sixteen years have witnessed rapid improvement and refinement. These many changes are apparent in the present use of colorful, attractive designs, improved type-composition and the adoption of certain types and sizes of packages best suited to the consumers' requirements. The grade of carton board has also been subjected to improvement. Where cheap manila stock was once used (with doubtful guarantee of sanitation), we find today the greater percentage of paraffined containers made up of pure bleached sulphite lined manila board, ideally adapted both from the standpoint of strength as well as sanitation to the packaging of the most delicate and perishable food products.

Tight Wrapped Packages

THE TIGHT WRAPPED PACKAGE is now a standard type of package with many manufacturers and packers of food and grocery products. This type of package was first adopted a number of years ago by some of the cereal manufacturers, where its greatest advantage was in keeping the weevil from getting into the contents. This style of package proved so satisfactory for cereals that it has been adopted for use with many other products, such as flour, soap powders, salt, coffee, etc.

Various types of cartons with inside bags or liners can be used with the tight wrapped package, as well as different types of opening devices. In the salt industry the tight wrapped package is now being used by many of the leaders, and one of the most satisfactory salt packages is a carton made of asphalt lined board which is tight wrapped on the outside. For coffee, wax or parchment paper liners are generally used on the inside of the carton and the cartons are tight wrapped on the outside. For flour, the regular chipboard carton is used and some of the packers have these made with a blue lining on the inside which gives a whiter color to the flour. Various combinations of cartons, liners, and labels can be used to insure the product getting to the consumer in the best possible condition.

Another advantage of the tight wrapped package is for the packers or manufacturers who pack private label brands for different customers. If he uses the tight wrapped package he can use the same carton and merely have different labels for the different brands. This means a saving as it is not necessary to carry a number of different printed cartons on hand. With the tight wrapped package various types of labels giving different styles of end folds can be used to suit the conditions. Some labels are die-cut so that each end flap of the label is glued down separately. Others are rectangular, making a gusset fold on the end.

The machines for tight wrapping packages are built in different styles and types to suit the conditions. There is a semi-automatic machine which is hand fed and adjustable for different sizes and has a production of 10 to 15 tight wrapped packages per minute. Then there is the fully automatic machine usually built for one size package to be wrapped and has a production of 60 to 70 tight wrapped packages per minute. One of the principal advantages of the fully automatic tight wrapping machine is the great saving in labor. In one of the large cereal mills there were employed 75 to 100 girls hand wrapping packages. Two automatic machines and five people replaced this hand labor and in addition the customer obtained a better and tighter package.

With the tight wrapped package the plain unprinted cartons are filled and sealed in the regular way, there being a number of different makes of semi-automatic and full automatic carton filling and sealing machines on the market. After the carton is filled and sealed it is fed into the tight wrapping machines which automatically feed the paper labels as the cartons entering the wrapping machine glues the labels all over on the blank side with a thin coating of adhesive and wraps it tightly around the filled carton, making a perfectly tight sealed, non-sifting, weevil-proof, and attractive package. This package costs practically the same or possibly a little more than the printed cartons, but there are so many advantages in the tight-wrapped package which more than offset any slight additional cost.

Some of these advantages are: Better appearance of the package, stimulating sales. Printed or lithographed colors show up to better advantage on paper labels than when printed directly on cardboard.

Greater strength. The wrapper glued tightly to the carton strengthens the package, especially at the corners where there is generous overlapping of the paper.

Better preservation of contents. The contents of the package are fully protected against dust, odors, weevils, etc., and there is no loss from leakage or sifting.

Set-up Paper Boxes

By HOWARD P. BECKETT

THE SET-UP PAPER BOX embraces that category of packages manufactured from paperboard and furnished the user in the set-up, stiff or rigid form. It is differentiated from other types of packages fabricated from board in that the corners are stayed or in some way reinforced, so that it reaches the user in condition to be filled without additional labor. Basically, it is the highest type of paper box development as it not only possesses the utility factors of protecting the contents, but it has an aesthetic value in creating an atmosphere of worth to the product packed therein.

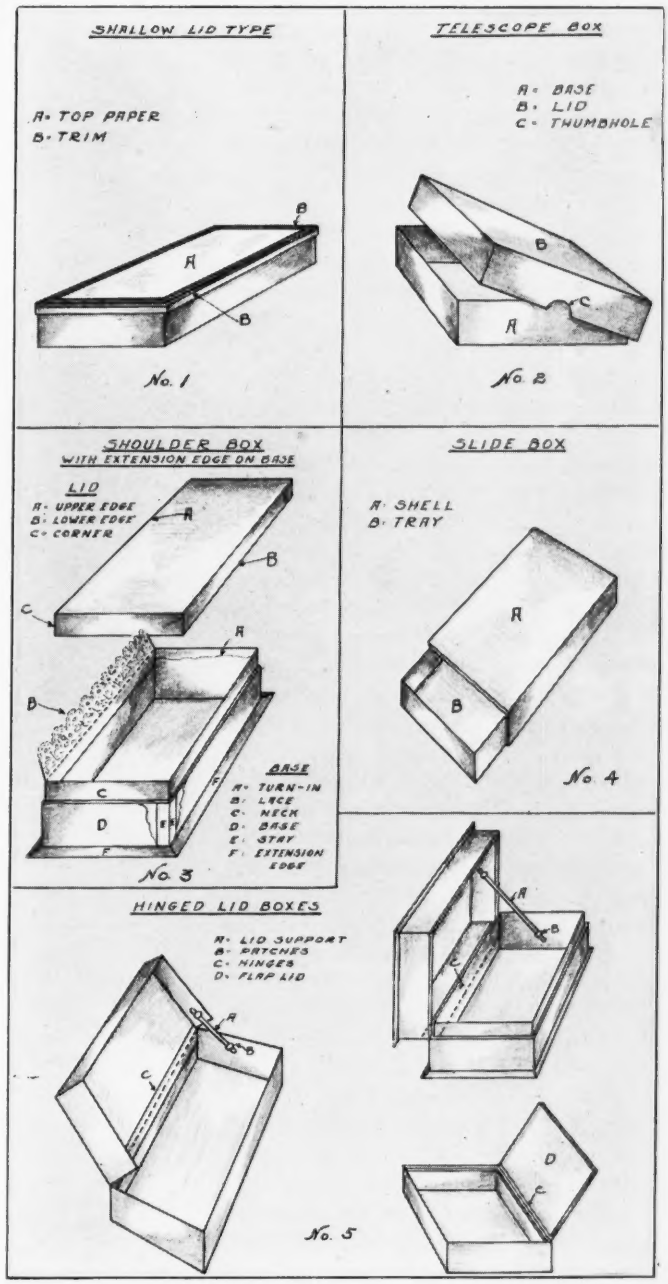
Set-up boxes are durable and strong. Where the content is not consumed at once, as with candy, stationery, etc., the boxes keep the content in better condition. Combination packages are made possible through the use of the set-up box, wherein can be packed several dissimilar articles. Such packages can be used to introduce new products, or overcome sales resistance of one of the products in the combination. The set-up box is readily and easily opened by the consumer. Only the removal of the lid is necessary to make the contents ready for use or examination. Manufacturers who use set-up boxes are able to meet seasonable and style changes quickly and at small expense.

Set-up boxes are especially adapted for packing the following:

a. Unique, irregular outlines, curved surfaces, hexagon, octagon, etc., where pasting must be done.
b. Huge-sized or bulky articles that are too large for the folding box.
c. Very tiny articles that are too small or too shallow for folding boxes—jewelry, hairpins, etc.
d. Fragile articles where hand packing is necessary to prevent breakage, or in mailing boxes.
e. Expensive articles, vanities, etc.
f. Where interior packing or a platform is necessary for display purposes or shipping purposes; manicuring sets, silverware, perfume bottles, etc., or any product with an unusual outline.

No machinery is needed in closing the box, or in setting it up. The user does not have to do anything except fill it. Set-up boxes are especially adaptable to the manufacturer whose output is small or varies greatly in size, quantity, or combination, or is subjected to seasonal variation.

IT IS IMPOSSIBLE to describe the myriad types of set-up paper boxes for the reason that the box manufacturer takes into consideration the nature of

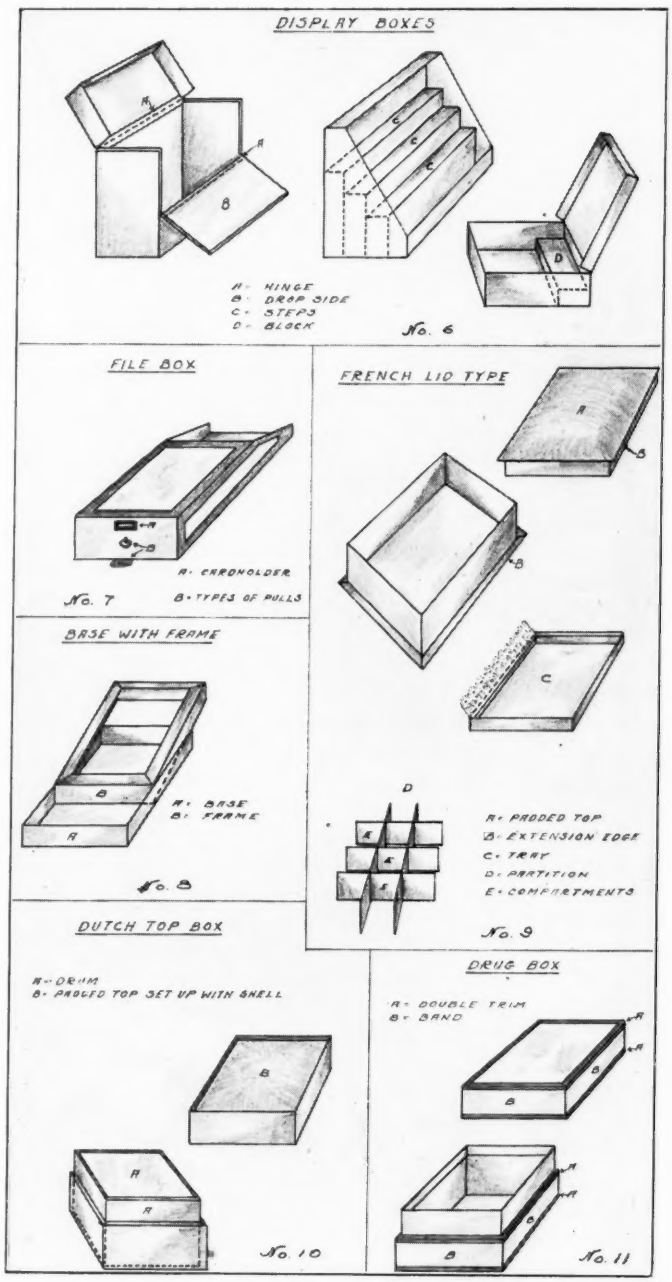


TYPES OF SET-UP PAPER BOXES AND THEIR CONSTRUCTION

the merchandise, methods of distribution, the price which must be charged and then designs the most effective package with these elements in mind. It may be desirable that the container possess a higher degree of utility than appearance, in which case a simple container is manufactured by the process of selecting the proper weight board, staying the corners and covering it with a simple paper. Again, the product may be one which requires the development of aestheticism. In such a case, the box manufacturer is required to prepare a box which is virtually a frame for a picture and must harmoniously set off the product to increase its eye appeal. In this latter case, the box designer has at his command thousands of beautifully designed papers, silks, or lithographs, from which he chooses the cover of the box. By reason of the elasticity of his equipment, he is permitted to construct a container in a multitude of shapes and sizes.

While the set-up box is not cheap in comparison with some other types of paper containers or wrappings, its actual cost to the manufacturer usually brings a fine return on the investment, for the reason that the selection of the container often removes the product from the level of competition and gives its user a distinct competitive advantage, to the extent that increased sales more than assimilate the additional cost. A few years ago, manufacturers of men's belts sold them in bulk, where they were hung upon wires for the consideration of the prospective purchaser. Today practically all men's belts are boxed. The first manufacturer to conceive the idea of the individual set-up box for this purpose, which was not in itself cheap, reaped a considerable harvest. Within the past year or two, manufacturers of sheets and pillow cases, towels, and other textile products have found that attractive sales begetting boxes more than paid for themselves in stimulating a lagging market. The florist, the jeweler, the department store, every merchandiser who appreciates the possibilities of gift marketing turns to the set-up box manufacturer, who, by reason of his experience and ability to conceive works of art in three dimensions, aids him in up-to-date marketing.

THE WELL DESIGNED set-up paper box is of great assistance in making the sale—it gives the final buying urge—it is the personal introduction of product to purchaser at the place where the sale is made. It is the ultimate advertisement, the follow-through of the advertiser, and as such must contain the elements which mark good advertising. It must attract attention, create desire of possession, and stimulate action—make the sale. Other sales-begetting factors of the good advertiser —the set-up box—are beauty, originality, convenience, and sense of fitness. The size, shape, quality, and cost of the box depend upon the product and upon the manner of marketing—the type of retail outlets. A set-up paper box need not be high priced, nor need it be unattractive because of low cost. Boxes are available in beautiful shapes and colors for the expensive specialty shop or the "five and dime." With the boxcrafter, beauty, good taste and



TYPES OF SET-UP PAPER BOXES AND THEIR CONSTRUCTION

economy mingle without apology in the fabrication of the product he makes.

What unit will the public buy? That will determine the size of the container. The shape may be governed by convenience in handling. The shape is important as well as design, for it may become the attention-getting or identifying factor. The convenience and utility of the box when the consumer uses it as a storage receptacle is important. The layout, the art work, the text matter should receive attention. Your product may be new and need introduction. Perhaps no one has time to inform the sales person of its merit. You may accomplish this by using the inside cover of the box. Tell your story there. Again, you may want the big department store to give your product a front window. Make your box a work of art—it will get there. Think of the possibilities with tasteful paper or lithography. Some manufacturers have put over sales campaigns with boxes with a poster top. The set-up box is the cheapest and most effective "dealer help."

Progressive manufacturers maintain departments for studying packaging needs. The manufacturer of a product which must pass through retail channels of distribution will do well to get in touch with a progressive boxcrafter and enlist his services.

Linings for Boxes

LINING assumes as important a role in the make-up of certain packages as the outside covering. A most practical material for box linings is velveteen, frequently miscalled velvet. The difference between the two is a technical one and the average layman does not know the difference between velveteen and velvet. Velveteen is more practical than velvet for the following reasons: Its appearance is that of a velvet; it is lower priced than velvet; its construction is such that when applied as a lining, pastes and glues will not come through; certain velveteens are prepared anti-tarnish for this purpose, which means that silver and other metals are not discolored.

Velveteen fills a particular lining need in good packaging especially where a soft cushiony effect is desired, as nothing can quite give the effect of richness as a luxurious velveteen. Many box, case and tray manufacturers have been using velveteens for linings for many years, notably all the nationally known silverware manufacturers, pen and pencil set manufacturers, for perfume boxes, cutlery articles, razor cases, spectacle cases, draughtsmen materials, toilet articles. Jewelry boxes are frequently made with velveteen both as an outside covering and a lining.

Velveteen comes in widths of 18-in., 22-in., 24-in., 29-in., and 36-in., making for a minimum of waste in cutting, and in a color range of 102 shades. When necessary any other shades can be dyed to match other materials. Velveteen is particularly adaptable to packaging as it is easily handled and may either be tightly stretched or shirred.

Perfumes and compacts are generally shown to best advantage in the various champagne shades, whereas shades of old rose, Copen blue and gooseberry are used for manicure sets. Silverware manufacturers incline to the more regal shades of royal blue, though there are the usual variations to meet the individual creations. Silverware trays prepared for the packaging of silverware in individual packages are also being lined with velveteen in shades of burnt orange, special shades of green, Copen blue and grey. For the lining of boxes which hold pearls greens and turquoise blues are used. For the general run of cheap jewelry display, the predominating colors have been military blue, emerald green and mignon purple. For pen and pencil sets such colors as burnt orange, special Nile greens as well as crystal grey are used.

Fibre Pails and Drums

FIBRE PAILS are used extensively by the manufacturers of candy, bakers' supplies and bulk drugs, sugar grinders, spice grinders, coffee roasters, salted nut roasters, etc.

The value of the fibre drum for the bulk shipment of food products, dyes, colors and chemicals has been demonstrated as far as the protection of the contents is concerned, and because fibre drums do not warp, shrink or dry out, the protection continues while products are in manufacturer's warehouse, in transit and also in the consumer's hands.

The use of fibre drums has also been developed for the shipment of lard, petrolatum, transmission greases, cup greases, oil silks and similar semi-solids that have an oil base. They have also been developed for tooth paste, adhesive paste, marshmallow whip and other products of a semi-solid or plastic nature which have a water base. Fibre drums are used for their cleanliness which is desirable for food products and chemicals. They are also used for their convenience in handling and for the full open top which allows free access to the contents.

In addition to the protection which they give their contents and the convenience with which they are handled, fibre drums are being used more and more for the advertising value of their exterior. Being straight-sided and smooth, and having a naturally fine appearance, they lend themselves to attractive display labels and enable the shipper of products in bulk to apply the same merchandising principle to the bulk shipment that has been so successfully demonstrated to be profitable in the presenting of his retail packaging.

Tin Containers

PROGRESS in the science of chemistry and bacteriology, advancement in the methods of manufacturing cans economically and modern developments in the art of lithographing tin plate have all contributed to bring the tin container into its own in the wide field of packaging.

Gone are the old prejudices against eating food from cans. And what food product is not available in cans? Milk, fruits, vegetables, fish, meat, olive oil and so on *ad infinitum*. For hundreds of products other than foods, tin containers have been adopted as standard because of the protection afforded to contents because of their handling, shipping and wearing qualities, and because of their low cost as compared with containers made of many other materials.

It can be truthfully said that anything that needs a container can be put into a tin can, but the difficulty very often found is that the product may not be able to stand the cost of a container. The result is that many producers turn from the use of tin to other material, which is not as expensive, and, in their opinion, serves the purpose. Except in the industries, where, through experience certain standards have been established, the type of containers used depends entirely on what the producer thinks necessary. It may be a can with both ends double-seamed on; it may be a friction or screw top and perhaps with some sort of nozzle or spout, and this can be kept on almost indefinitely if it were intended to enumerate the multitude of cans used in a particular industry. In each industry, because of necessity, where any considerable volume is to be packed, mechanical genius has developed particular equipment that will handle and accommodate the requirements of that particular trade. The coffee roasters, in particular, have at their disposal complete weighing and filling units, which greatly simplify their problem of weighing and filling their cans, likewise the tea packers, spice grinders and other industries. Each industry has its particular requirements, and to fill these requirements suitable can manufacturing equipment has been invented.

EXPERIENCE has taught the value of the tin can because of its strength and protection. A metal container is able to withstand the usual transportation usage and still not add any appreciable weight that will eat up freight charges. But in addition to strength and protection, the metal container offers two more important advantages; that is, its economy in handling, inasmuch as it eliminates, to a great extent, the spoilage which usually attends other materials, but its greatest value is in its ability to lithograph customer's trade mark or label identification. This is of great assistance because the label can never be destroyed, always presents a bright appearance and remains an advertisement for the producer so long as it remains unopened and even after that.

Few buyers realize the importance of advertising secured through lithography, but gradually the true value is being realized more and more and can buyers are specifying their requirements for lithographed tin cans. Possibly this one feature alone is more than equal to the slight increase in cost necessary to pay for the tin can over other materials. But buyers should exercise certain care in the matter of buying lithography. Lithography in itself is an art and science, and they should be careful to have their ideas capably interpreted by experienced artists and then have a reproduction to metal made by a company whose experience has proved their ability to properly reproduce label combinations. Like everything else there is a big difference in production of tin cans, in so far as quality is concerned, and like many other things, some people are inclined to consider it only from a price angle rather than a quality viewpoint. Half of a buyer's can requirements is the company behind the production of his containers, meaning the earnestness and care with which they apply themselves to the execution of all orders and that intangible something, which may be much or little, called service. It is, at times, very satisfying to know that even though the containers themselves are satisfactory, there is some one in an organization who they are sure can be of some assistance in helping them plan their package.

Fibre and Paper Cans

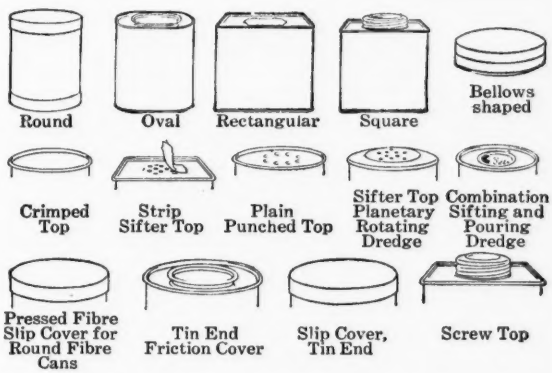
By C. T. SIMPSON

FIBRE CANS are now made in such a great variety of sizes and closures that they must be considered in the packaging of a large number of products.

All fibre, spirally rolled cans are now made from one-half inch to seven and a half inches in diameter, and there is practically no limit to the height; any color may be used on the top and bottom cap to match the color of the label; the can may be shouldered at each end so that the top and bottom cap will

be flush with the bodies and make it simple for labeling on automatic machines. Spirally wound paper cans are also made in a larger variety of walls than ever before. It is possible to buy the chipboard can, both plain and paraffined, for the simpler forms of packing; also the chipboard can be lined with either glassine or parchment paper. Then, for the more moisture-proof cans, the chipboard can may be used with asphaltum for a liner. This can, with an asphaltum-lined cover and shouldered so that the label fits snugly, is a very good can for keeping out moisture and will compare favorably with the better grade of tin cans. Cans made of Bedford manila are very attractive looking and durable.

There are, also, paper cans that are carried in stock for grocery stores, ice cream stores, drug stores and various other stores that sell in bulk. This type of can has made rapid strides in late years and is fast replacing wooden plate and ice cream folding packages. This type of can is usually carried by the paper jobber in the following sizes: one-quarter and



one-half pint, one pint, one quart, and half-gallon and gallon. They can also be had with printed tops and sides, made to order for very little extra cost, which carry special advertising value.

A new type of can that is now on the market is an aluminum-foil lined can for baking powder and is said to have proved a success. Tin-foil cans have been on the market for some time but the aluminum-foil lined can is new.

There has also appeared on the market a new style of can for marshmallows. This is a spiral can, rolled with an outside ply of pure white sulphite and printed in colors after rolling. After the marshmallows are put into the can and the caps placed in each end, the completed can is given a bath of paraffine. The white sulphite board gives a beautiful, glossy surface and the can is said to keep the marshmallows in excellent condition.

The bird seed folding box and round spiral paper can are being replaced by one well-known bird seed concern with a square, convolute, round-cornered can with a tin top and bottom, the top having a metal pouring spout. Many manufacturers of other products should utilize this idea as it is a very successful package.

The convolute fibre can is taking the place of the spiral can by users who want a good, strong can and are willing to pay more. This type of can is made in various shapes, the more popular ones being round, square with round corners and oval. Five types of walls supply practically all the wants of users. These are as follows: (1) Plain chipboard, (2) imitation Bedford manila, (3) genuine Bedford manila, (4) Bedford and chip combined with asphaltum and (5) glassine-lined chipboard. There are various other kinds of material used but the bulk of the cans are made out of one of these five. The method of manufacture in the winding insures a strong, stiff can as the paper gets a good coat of glue on one side which is allowed to soak into the board for a little time before the paper reaches the winding mandrel. The can comes off the winding mandrel in a soft condition but after drying is very stiff. For packaging ordinary products that are dry, the chipboard is usually satisfactory but for oily products the convolutely rolled can of genuine Bedford or glassine-lined chip is recommended.

For a moisture-proof can the combined chip and Bedford with asphaltum is the best. This type can be made with various closures but the round style is the only one that is used with paper ends to any extent. On the square, round-cornered can it is possible to have a large variety of tin closures, among them being the following:

Plain Slip Cover—This is just an ordinary tin cover that slips over the top of the can after the contents have been packed. The can is usually labeled to keep the cover on. The top can be plain or the user's name can be embossed on the top.

Friction Top—This closure is very popular as the can is filled from the top, and the friction plug is forced into place after the filling operation. A can of this style has the advantage of coming to the user already labeled.

Crimped-On Top—This can is filled from the bottom. The can manufacturer furnishes a crimping machine to the user for the purpose of crimping on the bottom after the can has been filled.

There are also various types of sifter tops that are used considerably. These sifter tops can be put into either a slip cover style or a crimped-on top.

For certain products nickeline tops are in demand and, although they are higher in price than tin ends, they make a more attractive appearance especially with a label of good color and design. Nickeline top cans are closed and opened by just a turn of the hand.

The paper can industry has made a great improvement in the last few years, and before any product is put on the market, the value of packing in a paper can should be seriously considered from the standpoint of cost as well as from other advantages obtainable in such containers.

Special Paper Bags

By H. S. Daniels

THE TERM "Special Paper Bag" usually means very little to those outside of the paper bag industry proper. Indeed, it is downright unfortunate that some other expression, which would do justice to them, has not been adopted to designate such worth-while developments in the art of bag making. To many—probably to the majority—the very term "paper bag" (even though it be coupled with the adjective "special") conjures up the vision of a humble, rumpled, brown paper grocery bag. As a matter of fact, the better types of special paper bags, today, are no more to be confused with a grocery bag than is an elegant, decorated, tinted perfume vial to be mistaken for either the humble milk bottle or the huge 12-liter laboratory "flask" of Pyrex glass! And, as manufacturers and packers are coming to appreciate the possibilities of capable special bag production and design, "Special Paper Bags" are gaining respectful recognition.

While special paper bags have been developing steadily for nearly thirty years, certain recent factors have combined to accelerate the pace considerably. Of great importance is the factor of current business conditions. Since about 1922, we have had a steady reduction in the selling prices of commodities, but with demand continuing pretty consistently high. To meet these conditions, successful manufacturers have reduced cost-to-produce without detracting from the real worth of the article. One substantial element in the production cost of many items has long been its *package*—and for the manufacturers of many such items the individually-designed paper bag has filled a real want in a timely way.

Another source of increased volume in special bags has been their adoption as containers for such products as cement, stucco, clay, etc.—products which were formerly entrusted only to barrels, cases, burlap and such like. The large paper bag, composed of a number of walls or thicknesses of tough kraft paper, has not only opened up these new fields to the special paper bag, but has demonstrated to the entire packaging world that paper bags can be built to stand a much more severe strain than was generally believed.

A third factor in largely increased use of special paper bags has been sharp improvement in their own design and execution; to the point where they furnish the positive *selling* influence formerly accorded only cans and boxes. In this factor, too, should be noticed increased willingness on the part of packers to accept the best in art, engraving, and printing. The most conservative houses now see that they must keep abreast of the "appeal" parade. The artist, the engraver, the ink manufacturer and the multicolor, high-speed press have joined to produce fancy paper packages which, when filled, sealed and displayed can hardly be recognized as bags.

It seems idle to attempt to compile an exhaustive list of the fields where special paper bags can be and are being used, since it would include practically every field where dry products, small enough to be "poured," are put up in retail units. The range and variety of such containers are surprising to the uninitiated—from powder puffs to Stillson wrenches; six-foot hoe handles and blankets; cement and dress shirts. The special paper bag makes strange bedfellows!

Its use as a retail package is only one of the services which the special paper bag performs. Roughly speaking, there are four general use classifications that have called special paper bags into being. The first has already been mentioned, viz.: as an economical retail sales package. Probably the most familiar examples of this use are the fancy duplex (double walled) coffee bag, the 4-, 5- and 10-pound fancy flour sacks, and similar display units for sugar, rice, cornmeal, bath salts and many other products that were once either confined to bulk handling or packaged in more costly containers.

The second service that often creates a use for special bags is *protection,* or, more specifically, in some instances, *insulation.* The need for protection has originated special bags for hoe handles, dress shirts, blankets, etc. And the insulation requirement has carried the special bag into dry ice packaging, green banana shipments and other fields.

Still a third service performed by the special paper bag is its use as a *measure.* In the drug and chemical fields particularly, paper bags have been designed in the exact size to serve as a definite measure for contents that must be mixed before using. An example of this is the insecticide bag, where the amount of contents is exactly in the right proportion for a given amount of water, and directions printed on the bag call for its entire contents to be emptied into the specified amount of water. In the manufacture of metals, we again find the special paper bag serving as a measure—so many units of various chemicals to go into a furnace of ore.

And still a fourth service is the *identification* of products for commercial use. Probably the most familiar example in this group would be the two little white powders, one of which is in a red package and the other in blue, and in the mixing of which the red package must be dissolved first.

Any manufacturer who has one of these four problems to contend with may well investigate the possibilities of a special bag to give him the most econom-

ical answer. Of course, the four groups are seldom drawn sharply—usually a package that was originally created for one of the four reasons finishes by performing two or three of the other services at the same time. The package that was needed as a measure, for example, can also increase sales by attractive display printing, and can protect the contents against deterioration by having a waxed or a glassine liner.

Some of the more recent developments of special bags (many of which may be incorporated in a single bag) may be noted briefly:

The Siftproof Bottom: A triple cut-off and seal (patented) has been so effectively worked out that a literally siftproof bottom results. It has been recognized specifically in the B. W. Dunn Amended Tariff covering the shipment of poisonous articles and is official even for such insecticides as arsenate of lead, a material only one-quarter the "size" of flour. This siftproof bag is also winning its way in the case of several non-poisonous, but messy, products of which carbon black and lamp black are good examples.

Tin-Tie Bag Tops: In a number of uses for special bags—notably coffee—it is desirable for the consumer to be able to open and reseal the bag repeatedly. This need has been met nicely by means of a closing device of soft metal which comes attached to the top of the bag and clamps it shut.

String-and-Button Attachments: For a number of uses—as widely separated as the packing of blankets by manufacturers and the wrapping of shoes by an individual who wants to protect the clean linen in his traveling bag—a string-and-button device has been developed and neatly attached to the bag tops. It offers quick and easy opening and closing.

Waterproof Adhesive: It has long been possible to make any substantial sheet of paper reasonably waterproof. But the fly in the ointment has been that available pastes were readily soluble in water, so that the unavoidable seams (when these papers were formed into bags) played the role of the heel of Achilles. Only recently, a fully waterproof, workable adhesive has been perfected, yielding at last a sales story and a paper bag that will literally "hold water." The waterproofed paper bag de-luxe is one not only utilizing waterproof paste, but employing paper treated with the odorless asphalt combinations that have been perfected within the past couple of years.

Window Bags: The transparent "window" has been extended from envelopes to paper bags with complete success for those uses where examination of the contents (without opening) is of practical or sales advantage.

Multi-Wall Bags: The developments in this field have been very rapid—multi-wall bags using as many layers and kinds of paper as are needed for strength and appearance. As many as five layers are quite common.

Printing: Probably the last three years has seen as much in the way of elaboration of bag printing processes (and particularly reduction of bag printing costs) as have all other years since the hand-fed job press reigned supreme. Only a short time ago, "fancy" printing of a paper bag frequently cost as much as the bag itself; now bag printing often costs less than the same job would cost on flat sheets of paper, and there are some new forms of high-speed printing (done on the bag machine) which fail to add appreciably to the cost of the bag at all.

Mention of two further developments in special paper bags will serve to round out the story on such types of packages for this year:

Transparent cellulose, with its slight substance, lack of fibre, "tackiness" under friction conditions, etc., for some time baffled the resources of the manufacturers who produce bags at high-speed from rolls of papers. But it has been finally tamed and coerced, yielding a completely transparent bag.

As a natural outcome of the greatly increased use of special paper bags on the part of packers all over the country, considerable progress has been made by machine houses in furnishing automatic, mechanical means of filling, weighing and closing. Already, there are a number of such machines available, and one hears that several more will be announced in coming months. This means that the special paper bag—always the most economical form of container for the small packaging operation—now offers its characteristic savings to large-volume houses as well.

Textile Bags

THE TERM "textile bags," as the name implies, refers to bags made from textile or woven cloth of one kind or another and is used to distinguish such bags from bags made of paper. Textile bags may be made from any kind of woven material, although practically all are made from cotton or burlap goods.

Textile bags are peculiarly appropriate for packaging certain commodities, just as bottles, collapsible metal tubes, cans and cartons have fields they are particularly fitted by their nature to serve. Textile bags are particularly adapted for use as containers for powder and granular products, such as flour, sugar, table salt, ice cream salt, soap chips and powder, and various chemicals. They are also used to advantage in packing vegetables such as beans, rice, potatoes and onions.

The use of cotton and burlap bags for packing potatoes for retail sales has increased tremendously during the past two or three years. Potatoes were formerly received by the grocer in bulk in burlap sacks. He sold them to his customers in paper bags

by the peck or pound. The method used today to an increasing extent is the packing of 15 to 25 lb. of selected potatoes in small cotton or burlap bags. Potatoes so packed not only bring a premium but also enable the groceryman to wait on his trade more quickly. He simply picks up a bag of potatoes and hands it to his customer and does not have to go through the slow process of filling the paper bag with potatoes and weighing it. He can serve more customers.

Advertising value: Brands, trade marks, and other advertising matter may be printed on textile bags in various bright colors in a similar manner as is done on other types of containers. Art departments are maintained by large and more progressive textile bag manufacturers where brands are designed without charge to the customer. Poster effects are most striking on textile bags and with the various contrasting colors available in up-to-date bag designing and printing, attractive effects are obtained.

Textile bags light in weight, yet strong: Textile bags are light in weight compared with most containers, and this means a saving in tare weight on every shipment, thus effecting a permanent saving in freight charges. In spite of the light weight they are amply strong to carry the contents safely to their ultimate destination. They stand the strain under the usual shipping conditions encountered. They do not break or fall to pieces if by chance they fall or are dropped. Research departments are maintained by textile bag manufacturers where tests are constantly being made to determine the suitability of different types of bags for carrying various commodities. Bags are designed for the particular purpose for which they are to be used, and tests are made that simulate the actual conditions the bags must undergo.

Textile bags flexible: Due to the soft cloth from which bags are made they are flexible and adapt their shape to the place in which they are stored. They pack together compactly, saving valuable storage space. The maximum amount of goods may be stored in the minimum amount of space. Empty bags require little storage space as they are bundled in compressed bales. The flexibility of bags makes them easy to handle and thay are preferred by shippers and carriers for this reason. Textile bags are flexible in another sense in that they can be made any size desired. Individual shapes and varying sizes, without number, are available. This feature enables a manufacturer to get a distinctive package for his product.

Textile bags have utility after being emptied: Cotton bags when used as containers for retail packages appeal to housewives as the sturdy piece of white cotton cloth of which the bags are made may be used as a dish towel, dust cloth, or vegetable bag. Burlap bags always have a good salvage value as they can be used again for packing commodities of low cost not requiring new containers.

Bag Sealing

SUCH PRODUCTS as ore, cement, lime, cereals, coffee, drugs and a host of other products are being successfully shipped throughout the country in paper bags.

The paper bags are made in many different ways:

1. The multi-wall bag
2. The lined bag
3. The valve bag
4. The glassine bag

—and a number of others.

They are sealed either by sewing with special stitching machines or by tying with heavy cord or by folding and tapeing, and also by lapping and gluing. They can also be stapled. At present the lapping and gluing method seems to make a perfectly airtight package.

Machines are made that will automatically fill the bag and then close it under some one of the above-mentioned methods.

It is advisable, when using bags, to be careful to see that the product packed in them is not affected by any chemical ingredient of the paper.

If an airtight package is desired, the tapeing or gluing method should be used and the bag closed immediately after being filled.

Collapsible Tubes

By FREDERIC REMINGTON

MUCH HAS BEEN SAID in the past about collapsible tubes and why they constitute the logical container for all ointments, creams and pastes, and many predictions have been made regarding the increasing number of items being packed in collapsible tubes. The most interesting thing to the reader of PACKAGING CATALOG is the fact that these predictions are coming true with startling rapidity. The last year has seen the adoption of the collapsible tube as the standard package for at least one additional important food product, and in addition a cream soap, used in exactly the same manner as the traditional cake of soap, was presented to the public in tubes with the added value of being particularly adapted to travel

use. In addition to this the inevitable competition of one group of containers against another is evidenced by the adoption of tubes as a competing item against another type of container with open advertising to the public of the results of the competition.

Unquestionably most of the technical statements regarding collapsible tubes which have appeared in previous articles are holding true and the purchaser can rest assured that in every case the purest tin available is used by the manufacturer of collapsible tubes for tubes classified as "tin tubes", and no adulterant of the type of lead or other materials is used as this would only make the manufacture of the tubes increasingly difficult. The four outstanding materials in the tube field, namely, tin, aluminum, lead and tin-coated lead are still in use, and the largest number of products, particularly those produced for use on the human body or in the human body, are packed in pure tin tubes. Next comes aluminum as a material which is in itself competitive with a tin tube, but admirably adapted for similar use and having the advantage of light weight. Lead tubes often called "lead alloy" tubes, are used for adhesives, shoe creams, rubber cement and similar articles where the contents will not be used on the human body. "Tin-coated" is a tube with a lead alloy base with an even distribution of a thin coat of tin on the inside and outside, processed in such a manner that the two materials cannot separate. The use of these has declined in recent years, chiefly due to their weight, the economic loss of their scrap value which is exceptionally low, and because their final appearance is not usually as good as pure tin or aluminum.

Standards of manufacture and tolerances are being held to closer limits than ever before by the manufacturers and quality is the outstanding watchword in the entire industry today and coupled with increasing facilities for prompt delivery, the purchasers of collapsible tubes are more than ever assured of prompt service of a high quality package.

Almost any type of decoration can be placed on a collapsible tube and the reproduction of accurate color effects can be held in large quantity runs and basically this work can be done up to four colors and with ten or eleven shades resultant from screen work if desired. Great strides have been made in the development of resistance for protection against alkalis and other materials which might attack the enamel on the tube and more striking colors are being used in the modernization of tube designs by most of the larger accounts.

NEW TECHNICAL REFINEMENTS in the design of clips for use on filling machines and ribbon metal for manufacturing clips while filling have been brought forth in the last year and in addition to this the presentation of a new folding device which turns over the corners of the tube at the bottom forming a clip-like lock has been introduced in the last few months and is finding favor with manufacturers particularly in the aluminum tube field where the metal is particularly adapted to such a closure. This new form of closure embodies the lithographing of a stripe around the bottom of the tube by the tube manufacturer and the result is a colored clip effect when the tube is closed. New materials have been introduced in the manufacture of caps and the usual discussion and advantages are presented for molded caps as well as for the newer designs of all metal caps and many new products have been introduced in the current year with the all metal cap modernized to a degree that finds favor with many customers.

It has been our desire to embody in this article some of the newer developments in tubes and to avoid all of the former set phrases which have been used in their description. Therefore, we have avoided repetition of material embodied in previous articles of PACKAGING CATALOG which, however, could be added to the substance of this article and the complete collapsible tube picture thereby obtained.

To summarize what has been previously published, collapsible tubes have the following definite advantages: "the average public is familiar with them and knows how to handle them; they can be packed for traveling; they are sanitary, as you cannot get your finger into the material; more than one person can use a tube, whereas, with other packages it is more limited. The package is eliminated and the unit cost is less with filling and handling expenses much under other containers."

Phenolic Compounds in Packaging

By H. S. Spencer

PHENOLIC RESINOID COMPOUNDS or phenolic condensation products, as they are more technically known, are of chemical foundation and remolded or formed under heat and pressure, the manufacturers supplying material in a powdered form to those equipped to make it into the finished closure, jar or box by what is known as the hot press molding system. This work is done by organizations specializing in molding and known to the trade as custom molders. Up to the present time, no manufacturer using phenolic materials in packaging has attempted to do his own molding which is a specialized under-

taking requiring rather expensive and special equipment and experience.

The trend to phenolic compounds or phenolic resinoids as they are sometimes referred to, for caps and bottle tops in the last year, has been very pronounced. This is due, in addition to the practical advantages, to the beauty of the material itself, and that because of all of those advantages the public have liked these molded closures. Liking them for their attractive colorings, the range of which has been somewhat limited until recently when one manufacturer has offered in his product twenty-two solid colors and several mottled effects.

Molded closures of Durez, Bakelite and the like, have been developed to exclude cork inserts for use in connection with collapsible containers, although the majority of manufacturers have continued the use of the cork insert together with the phenolic molded part which make an especially tight closure.

One of the outstanding advantages in connection with collapsible tubes and molded closures is that the closure does not lead nor do the contents cake or discolor in the mouth of the tube, thus throwing the often fatal strain on the tube's weak spot, the wall at the shoulder.

WHILE MANUFACTURERS are alive to the appeal of color and the vogue for colors now reaching into every phase of merchandising, it is not color alone that prompts the use of the phenol resinoid cap. While this plays its part as does the modernistic trend, these caps have many other advantages in their favor. They are not affected by acids, alkalies and similar reactives; they do not rust or corrode in contact with certain pharmaceutical products and they do not discolor the contents of the container; they are easily gripped and on bottles and jars screw down unusually tight and yet are always readily released. Their threading is stronger than the alloy metals and does not strip. They are light in weight, and have an advantage in carriage convenience and cost over metal.

In group packaging they are particularly fitting for the permanent tray or box for refill purposes.

Phenolic materials lend themselves to display cases, cold cream jars, vanity cases, powder boxes and in fact practically all types of set-up boxes. The acceptance of the material, because of its fine lustrous appearance, color and design possibilities, resistance to atmospheric conditions and in securing a tight closure, has made it acceptable for the highest grade cosmetics. Manufacturers of foods, candy, shoe dressing have also found these materials valuable in the packaging of their products.

Phenolic compounds permit manufacturers to have their own individual closure, bottle cap or container made for the material lends itself to all types of designs, imprinting and similar treatments, as any design engraved in hardened steel molds from which the finished piece is to be made will carry an exact reproduction of what is desired.

The adaptability of the material permits it to be used for shaker top talc boxes, sprinkler top bottles, inside threaded bottles for applicators, etc.

Cellulose Acetate Moulding Materials

By Charles F. Reeves

CELLULOSE ACETATE colloided with suitable plasticizers, pigments and solvents to insure a homogeneous, tough plastic mass forms a molding material of great adaptability for colorful packages or containers.

This unique molding material requires no special treatments such as a hardening bath, curing or subjection to high temperatures to complete condensation or polymerization reactions. Heat and pressure are required merely to mold the material into the desired shape. Waste is eliminated because scrap or flash is reworkable.

Cellulose acetate molding material offers an unlimited color range to the designer of containers. These can be molded of transparent, translucent or opaque materials. Beautiful mottle effects are also available. The imitation of marble, onyx, jade, and other valuable materials is so close that only an expert can detect the difference.

Containers or packages molded of cellulose acetate molding compounds are practically non-inflammable, are tough, resilient and resist breakage, are light in weight, uniform, tasteless, odorless, sanitary, noncorrosive, non-injurious and do not deteriorate or fade with age. DeLuxe containers for watches, jewelry, gift items, razors, fountain pen and pencil sets are a few practical applications. Jar tops for cosmetic creams are being molded of cellulose acetate and add greatly to the appearance of the product.

Cellulose acetate molding material is a patented composition and is sold exclusively under the trade name "Lumarith."

Beetle in Packaging

BEETLE is non-inflammable, odorless and tasteless and is not affected by water, alcohol, organic solvents or dilute concentrations of acids and alkalies.

It is unnecessary to use glass liners with Beetle jars as there is absolutely no reaction between jar and contents. Beetle jar and bottle caps offer a satisfactory threaded seal, but most manufacturers continue to use cork or waxed paper inserts to insure air tightness.

This product is produced in all colors from white to black including ivory and light pastel colors not previously available in other plastic materials. Articles molded from Beetle are extremely durable, which quality has been exploited in the production of Beetleware—a non-shatterable line of tableware in colors.

Beetle is being used to advantage in dressing up old items to increase their salability as well as permitting the packaging of new lines in striking solid color effects and color contrasts. It is now being molded in this country by a representative list of custom molders with previous experience in the field of packaging and whose facilities are entirely adequate for the production of these items on a quantity basis.

Glass Containers

By E. G. ACKERMAN

THE GLASS CONTAINER is regarded as the modern type of receptacle for almost any kind of product. This is due to certain inherent properties possessed by glass as well as to the display advantage its transparency confers.

Glass containers are grouped by the glass maker into four general classifications according to use with a further division as to shape. These categories, together with the products for which they are used, are grouped below.

Types and Purposes

1. Food.
   (*a*) Milk bottles: For milk and cream.
   (*b*) Narrow neck blown bottles: For catsups, chili sauces, table sauces, vinegars, salad dressings, syrups, condiments, spices, salad oils, oyster cocktails, etc.
   (*c*) Wide mouth blown bottles: For jams, preserves, mustards, candy jars, cherry bottles, olive bottles, pickle bottles, crushed fruit jars, horse-radish bottles, mayonnaise jars, vegetable jars, meat jars, salt and pepper shakers (when sold to packers), etc.
   (*d*) Pressed ware, tumblers: Used largely for jelly, peanut butter, marmalade and some meat products.
2. Beverage Containers.
   (*a*) For carbonated beverages, such as sodas, ginger ales, malt extracts, cereal and malt beverages.
   (*b*) For non-carbonated beverages such as fruit juices and still water.
3. Medicinal and Toilet Preparation Containers. (Both pressed and blown).

For all medicine bottles, druggists' prescription ware, bottles for pharmaceutical preparations and manufacturing chemists, toilet preparations, cosmetics, nursing bottles, sterilizers, peroxides, citrates, hair tonics, pomades, atomizers, liniments, cold creams, vaselines, face creams, lotions, talcum powders, castor oils, flavoring extracts, liquor ware, perfume and toilet water bottles and tooth brush containers.

4. General Purpose Containers.

For acids, cleaning fluids, polishes, paints, shellacs, varnishes and stains, ammonias, inks, mucilages, battery jars, soap globes, oil dispensing bottles, reservoirs for oil stoves, floats, fire extinguishers and other special items.

Advantages of Glass

The glass container possesses many marketing advantages from the standpoint of the packer and bottler. A few of these advantages are listed below. Their sequence of importance depends upon the contained product.

1. The glass container is the most sanitary container. Dirt or any foreign substance in the product can be readily detected through such container.

2. The glass container places delicate foods and drinks in the consumer's hands free from all foreign tastes and flavors.

3. The development of automatic machinery makes it easy to pack a product in glass.

4. Transparent containers guarantee 100 percent inspection, thus establishing market and public confidence.

5. In revealing everything as it is, the glass container gives the packer full credit for his use of high class raw materials and superior packing methods.

6. The glass container helps sell its contents; it is the "silent salesman."

7. The packer is protected in that if there are any imperfections in the product or mistakes in labeling, they can be detected while in his hands, thus saving ill will.

8. Since color is a potent selling factor, the transparent glass container packed with a colorful product offers unusual opportunities for the use of attractive, harmonious and sales-pulling labels.

9. The glass container has the best psychological background. From the nursing bottle through child-

hood to old age, glass stands for purity and sanitation in everybody's mind.

10. The housewife is already sold to the idea of glass for home preserving. Thus, she is a ready prospect for goods marketed in glass.

11. The demand for greater variety of products in glass is rapidly increasing.

12. The glass container lends itself to individuality in size and shape; hence, it is adaptable to any products.

13. Modern glass containers possess great tensile strength, withstand the heavy shocks incident to shipping and handling, and can be subjected to very high temperatures in processing (cooking).

14. The manufacturers of glass containers and closures are glad to cooperate with the packer. They are squarely behind their product and their customers.

Glass containers are commonly made in flint (clear white), amber, blue, light green, emerald green and opalescent colors. Special types are made in a wide variety of color effects. These are used largely in the toilet requisite field.

Most of the glass containers used are manufactured under quantity production methods. Unusual shapes and sizes require special moulds and special runs which add to the price, although a few manufacturers are today turning out modernistic types of containers on a somewhat larger production basis than heretofore.

The Glass Container Association of America, 19 West Forty-fourth Street, New York City, is at the service of packers and bottlers requesting information upon glass containers, closures, machinery and equipment and specific packing and bottling problems.

Liners for Caps

By H. J. HIGDON

THE LINER of a metal cap which is used to seal foods, pharmaceuticals, toilet preparations and chemicals usually consists of two materials—a resilient material and an impervious material. Both have an important work to perform in effecting the seal of a jar or bottle. One, to absorb minor imperfections of glass finish. The other, to resist action of product.

Two types of resilient material are commonly used —compo cork and pulp board. *Compo cork* consists of small grains of cork which are held together with a binder. A cork composition is superior to the natural product for liner purposes because the method of manufacture eliminates air holes which are found even in the finest grades of cork. In addition to this, it is more resilient because the grain of the cork is turned at all angles. *Pulp board* is made of wood pulp. There are several grades, some are made from virgin spruce wood, others from reclaimed paper of the streets or old newsprint. A superior pulp board is easily recognized by its clean, white appearance, freedom from blemishes and pliability. Only this class of material will give an effective and sanitary seal. Compo cork, because of its greater resilience, is used in screw caps, 33 mm. or less in diameter. Pulp board is used in the larger sizes.

Compo cork and pulp board are sometimes used alone to seal the simpler forms of products. But when this is done their surface is usually treated with paraffine or some other impervious material.

Five types of impervious materials are commonly used: wax paper, oil paper, black paper (gilsonite), tinfoil and rubber. In addition, there are several special liners for such products as oils, peroxide, etc. These materials have been found satisfactory for practically every chemical product sealed in bottles and jars. The proper impervious material to use may be determined by a series of simple tests. These tests may be conducted by the manufacturing chemist in his own office or laboratory. Thirty days is usually considered sufficient time to determine the proper liner, although longer tests are sometimes recommended. Usually, time may be saved by consultation with a reliable manufacturer of metal caps. Records of tests on basic products are kept on file for reference.

During the last few years there has been some experiment and considerable talk about a *universal liner;* that is, a liner which could be used to seal all types of products, acid or alkaline, liquid or paste. Such a liner would be welcomed by every progressive cap manufacturer and quickly adopted. It would simplify a now more or less complicated problem. But no one material has been discovered which will effectively serve the purpose of both resilient and impervious material. And no one impervious material has been discovered which will effectively seal every product under every packaging condition. Even though such a material, or combination of materials, were discovered, it would most likely be too expensive for universal use—many products now being sealed with the simplest and least expensive forms of liners.

The resilient and impervious materials are seldom adhered in the smaller sizes of caps as there is sufficient spring in the impervious materials, when of small diameter, to keep them in place. But in sizes 35 mm. and larger in diameter, it is advisable to make them as nearly one piece as possible. The adhesive which is used to do this is of more than casual importance. It should not be odorous or have the tendency to penetrate the fibres of the impervious

material. If odorous, it may contaminate the product. If it penetrates the fibres of the impervious material it may make the liner susceptible to the action of the product, thereby destroying the effectiveness of the closure if not injuring the product.

The safe delivery of a food or chemical product to the consumer and the good name of the packer or manufacturing chemist frequently depend upon this thin disc of cork or board and paper. Therefore, it cannot be selected too carefully. Not only should it be capable of resisting the chemical action of the product it seals, but because it comes in actual contact with the product for long months at a time, it should be made of the cleanest raw materials and combined under the most hygienic manufacturing conditions. Results of tests made to determine suitable liners are available from leading manufacturers.

Cellulose Caps

Cellulose caps are hoods of pure cellulose applied moist over the neck and stopper of a bottle. They shrink rapidly and, as they dry, seal the bottle securely against evaporation, leakage and tampering. These caps are manufactured in a wide range of colors, both transparent and opaque, so that pleasing, colorful finishes can be given the product that will properly blend with the labels.

While the cellulose cap can be easily removed it cannot be replaced. With the seal intact the purchaser is assured the bottle has not been tampered with—an unbroken cap is a guarantee that the product is exactly as it left the manufacturer's plant. Such caps are applied by hand. An experienced operator can easily apply 800 or more per hour.

Closures

By A. J. Sterling

FROM THE EARLIEST DAYS of mankind the problem of sealing all classes of containers has been a vexatious question. The primitive urns, crocks and other vessels were sealed with covers of pottery, wood, skin and other crude methods, often topped with waxes of various kinds.

The first great advancement came with the discovery of cork, and this rapidly became universal in use. It served its prime purpose well and kept the contents of the container from leaking. Of course, glass became the first container with which the manufacturer had to contend and later on tin cans brought him further problems.

Glass, with its sanitary qualities, transparency and pleasing effects, took its natural leadership in a great many lines, but probably even today only about 30 per cent of those products which could be glass-packed are shipped in glass. This is due to the fact that up to the present time the glass container, plus the seal, plus the label, has not been considered as integral a whole as the tin can.

An ordinary cork, when pushed all the way into the neck of a glass container, needs a corkscrew to get it out, and this often destroys its effectiveness as a re-seal. Although corks form a very tight seal, they are hardly ever absolutely airtight. Space forbids going into details about corks or all the other seals that have since been discovered, most of which are now in use. Suffice it to say that it behooves us all to carefully study, test and compare the seals and methods before adopting any, remembering that cork, metal, lacquer, liners, glassware and material to be sealed must all be taken into consideration.

How few users know that a screw cap may be applied with a downward pressure like a crown cap? How many manufacturers know that even screw caps vary as to pitch and application? Hence, we present the following list of closures, which probably are the most prominent:

SINGLE SEAL CLOSURES

Crown ..... Various types. Used in the soda water, food products and brewing industries.

American Can and Hazel-Atlas. An aluminum cap with two ears for tear-off purposes.

Hazel-Atlas .... Aluminum and tin. A vacuum cap.

Goldy ..... Generally used in the catsup industry and has tear-off feature. Aluminum.

Anchor ..... A vacuum cap used in food industry for wide-mouth ware

Band cap ..... A cap used in the food industry and applied by crimping.

White ..... A vacuum cap.

RE-SEAL CLOSURES

(Closures that can prevent contents from spilling when held in any position)

Roll On ..... An aluminum screw cap, whose threads are formed on the container.

Williams ..... A cap sealed under downward pressure.

C. T. ..... Aluminum, bakelite, tin, glass, brass or zinc. This is the regular screw cap.

Glass Finishes for Closures

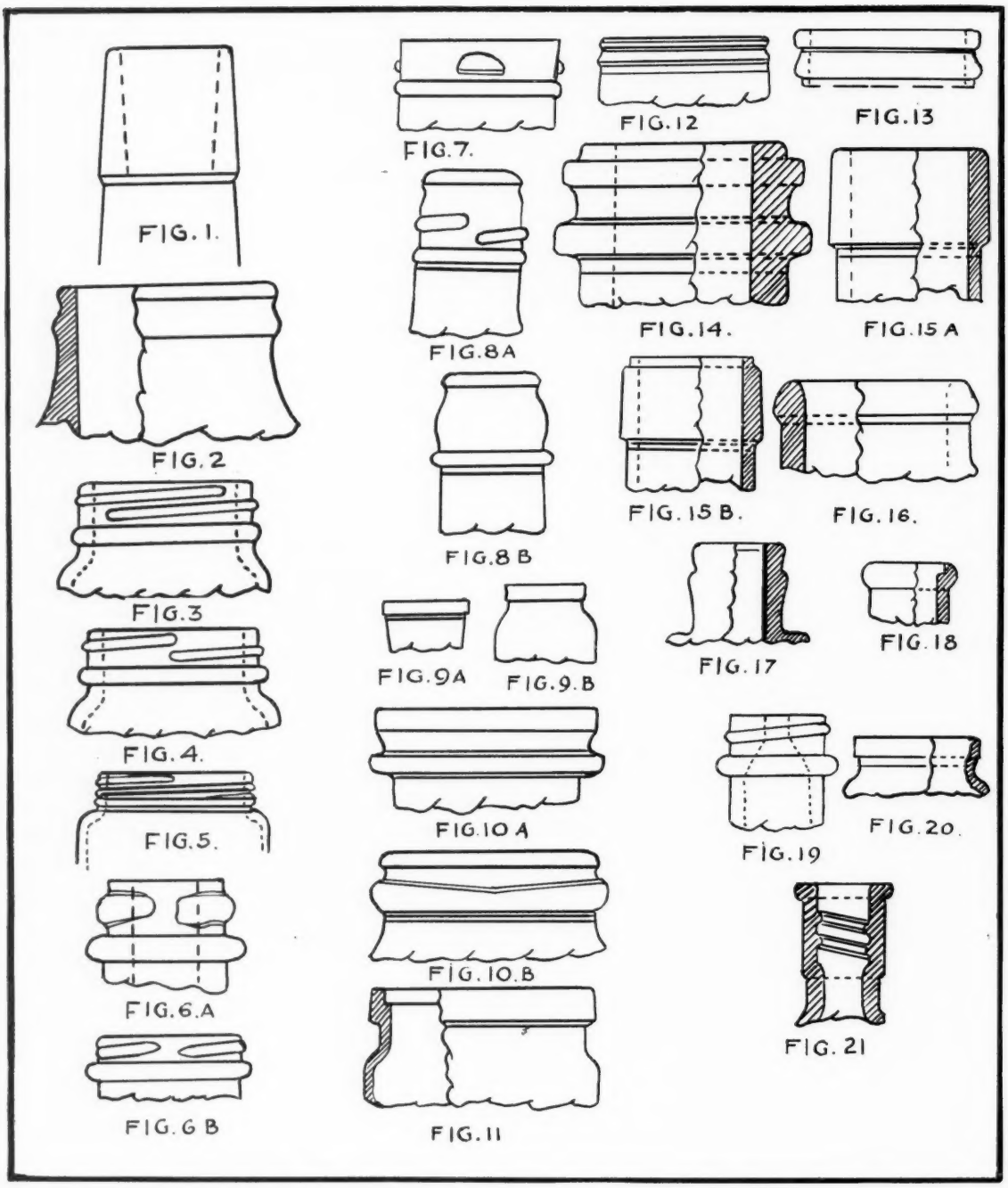


Fig. 1. Bottle with stopper finish; sealing surface inner surface of neck opening. Fig. 2. Crown finish; liner secured against top sealing surface. Figs. 3 and 4. Continuous thread (C T) finishes, shallow and deep; thread just below top engages closure. Fig. 5. R. O. (roll on) finish; modification of continuous thread. Figs. 6A and 6B. 2-lug Amerseal and 4-lug reseal finishes; also modifications of C T threads. Fig. 7. 4-lobe Duplex seal finish. Figs. 8A and 8B. Hermetic screw and friction finishes. Figs. 9A and 9B. Anchor or friction finishes; sealing surface on side. Figs. 10A and 10B. Pry-off finishes, friction and crown. Fig. 11. Band cap finish. Fig. 12. Atlas finish. Fig. 13. Goldy finish. Fig. 14. Super-crown finish. Figs. 15A and 15B. Save-A-Seal finishes. Fig. 16. Upressit finish. Fig. 17. Kork-N-Seal finish. Fig. 18. Milk bottle finish. Fig. 19. Sprinkler top finish; C T thread. Fig. 20. Vacuum seal finish. Fig. 21. Spring stopper finish; threads inside mouth.

Duplex .....A quarter-turn cap, sealed under downward pressure.

Amerseal .....One- and two-piece. A quarter-turn cap sealed by means of interrupted thread.

Upress-it .....Sealed by means of side pressure and opened by means of downward pressure.

Sterling .....A cap for narrow- or wide-mouth ware, sealed under pressure or vacuum.

Owens .....Snap on. A friction cap.

Closure service..A band cap.

Corks .....Rubber, natural, glass and cork, round glass stopper, paper discs.

Brass cap with lugs .....These are either friction or quarter-turned caps.

American Can and similar types using interrupted threads.

Spring stopper..Made of glass, bakelite, etc., with internal C. T. features.

Friction caps ...Especially designed for use on catsup and chili sauce bottles.

MISCELLANEOUS

Viscose .....These are cellulose or gelatine caps, usually put over another closure to insure no tampering and give extra airtight property.

Gel cap .....Same idea as Viscose.

Tin foil hoods...These are commonly used on alcoholic products and put over corks.

Sprinkler tops... With or without spun-on features and allowing use by means of shaking.

SINGLE AND RE-SEAL CLOSURES
(Used on tin containers only)

One-draw slip cover .....Various types such as coffee cans, etc.

Barrell spout and cap .....These are interior screw closures with non-drip spout effect.

Lock-Tite slip cover .....These are a particular type, insuring absolutely tight seal.

Friction top ....With or without inner seal. These are the ordinary pushed-in friction cover.

Newman .....With or without inner seal. These are generally used on varnishes, olive oil, etc., and are spun on.

Tite-N-Rite ....With or without inner seal. These have a hinged cover which can be used after opening as a re-seal.

One-piece single seal .....Reamed-on or clamped-on seal.

Various adaptations of the C. T. cap with anti-refill or theft features.

These classifications are of necessity brief—nor do we wish to do more than to impart the information that manufacturers of products are more and more becoming convinced that a container is not merely the glass bottle or the tin can or the shape or design of either. It is now generally understood that a container means the vessel, plus the closure, and the closure consists of the metal, its formation and the liner—for without liner there can be no closure.

These liners are composed of a variety of substances, as, for instance: Plain cork, composition cork treated in various ways, paper impregnated with different products, rubber, cork with paper, tinfoil, lead, zinc, aluminum, etc., facings, felt and a host of other products which are decided upon by chemists for the particular product to be sealed. A number of closure as well as liner manufacturers maintain laboratories to help the packer to scientifically decide which liner should be used.

These elements, properly selected, form the container, and together they enter into the successful sale and marketing of the product.

Labels for Round Cans

MOST OF THE TROUBLE which is met in labeling can be attributed to the use of labels which are off size, improperly trimmed or printed, cross-grain or incompletely dried. The following suggestions will be found helpful and will save time in the mechanical application of the labels, making frequent readjustment of labeling machines unnecessary.

To determine the correct length of a label, add ¾ in. to the distance around the body of the can. It is generally known that wet paste on tin is likely to cause rust so that it is desirable to keep all paste between the two thicknesses of paper. For this and other reasons, experience has shown the inadvisability of using short labels, and in the interest of standardization the general adoption of the above rule is highly desirable for any size round, hermetically sealed, friction lid, screw top or slip cover cans.

To determine the proper width deduct 1/16 in. from the distance between the can flanges. It is impracticable to calculate on labels fitting snug between the flanges, particularly on double seamed cans, because the distance between the flanges varies according to the adjustment of the individual closing machines. A full width label on a slightly narrow body will run up on the flange and fail to make a neat appearance. The slight clearance provided by adopt-

ing the above rule assures more uniformity in matching the laps of labels under varying conditions. On slip cover cans, the correct width is determined by deducting 7/32 in. from the distance between the inside of bottom flange and the top edge of the lid.

The following are dimensions for standard size labels for double seamed cans of the sizes shown:

Can Size	Type	Size of Label
2 11/16 in. x 4 in.	No. 1	3 11/16 in. x 8 15/16 in.
3 in. x 4 11/16 in.	No. 1 tall	4 3/8 in. x 10 1/16 in.
3 3/8 in. x 4 9/16 in.	No. 2	4 1/4 in. x 11 1/8 in.
4 in. x 4 11/16 in.	No. 2½	4 3/8 in. x 13 1/8 in.
4 1/4 in. x 4 7/8 in.	No. 3	4 9/16 in. x 13 13/16 in.

Particular care should be used in trimming labels to avoid tapering, i.e., the packs being wider at the bottom than at the top. Each pack should also be trimmed uniform in width; i.e., not wider at one end than at the other as it is impossible under such conditions to match the laps at both top and bottom.

It is well to have the laps meet in some sort of a circle style effect rather than in a straight line because of the difficulty of trimming absolutely parallel to the border. A slight irregularity of matching at the border is not recognized with a circle effect design.

On embossed labels, arrange the design so that the embossing is distributed somewhat uniformly over the label instead of being concentrated in one spot. Don't run it closer than one inch to the plain or lap end, although it may extend to the other end if on both top and bottom border as well as in the center. When embossing is placed in the center only, the thickness of the pack is increased at that point, thus giving the pack an unevenness which renders efficient control impossible without frequent adjustments. The embossing should not be "overdone" as this causes the labels to cling together, making it difficult to separate them. If embossing dies are cut with round corners rather than square, labels will separate more readily.

White laps are more effectively sealed than either inked or varnished ones because any paste adheres less thoroughly to the latter. For this reason, label designs should only extend about 1/16 in. longer than the distance around the can body. The length of the varnished surface should also be determined in the same way. It is especially desirable on friction lid and slip-cover cans to put the lap on the left end.

For high class or embossed work, a coated litho 25 x 38, 60 lb. to 500 sheets, makes the best label. A satisfactory label is also made from super-calender 25 x 38, 55 lb. to 500 sheets. Where a heavy varnished label is required, the stock must necessarily be lighter and a super-calender of the same dimensions weighing 52 lb. to 500 sheets is generally used.

The grain of the paper should run lengthwise on all labels excepting on those to be pasted all over and shrunk on containers of baking powders, cereals, etc.

If the grain runs crosswise or with the width of the label it becomes tender after the lap is moistened and is more likely to tear while being stretched. Furthermore, the lap tends to curl back before the paste dries.

Too deep a register causes the labels to pucker up in the center, thus preventing the cans from getting a uniform contact at each side as well as in the center.

(COURTESY OF BURT MACHINE COMPANY)

Glass Package Labels

THE USE OF GLASS CONTAINERS in the packaging of food products in many ways simplifies the problem of label design. At the same time, if glass package labels are to be most effective, it is necessary that a consideration be given to a number of factors which are encountered with glass but not with other types of containers.

Usually one of the functions of the label is to make the container seem well suited to the product, though in fact the container itself may be one which is used for products of widely varied natures. Since glass can be moulded or blown into many shapes and sizes, it is possible to design and produce a container especially suited to a product that will in time identify the contents. Some of the containers which are firmly established in the public mind as suitable and convenient for the products with which they are used are catsup and chili sauce bottles, preserve, pickle and mayonnaise jars and jelly and peanut butter tumblers. Other examples could be mentioned and it is true that as time goes on more and more glass containers will become associated with the products with which they are used because of their evident appropriateness of design.

In the design of labels used for glass food containers, the first question to be considered is that of size. With most opaque containers a label as large as the package itself must be used. Obviously so large a label would not be required with a glass container nor would it be desirable, since in choosing glass as a container for food products one of the main objectives is to make it possible for the consumer to see what she is buying. Relatively speaking, therefore, the glass food container label should be of a small size and it should be so designed that the consumer can see the product when looking directly at the front of the package with the label in place.

Thus the question arises as to how a small label can be used to best advantage. There are a number of possibilities along this line which as yet have only

been partly realized by packers in glass and which for emphasis can be listed and discussed. They are:

1. Legibility
2. Shape
3. Background
4. Color Combinations
5. Packer's or Brand Name
6. Name of Product
7. Trade Mark
8. Poster Treatment
9. Artistic Design
10. Standardization

The second problem presented by glass package labels is that covering instructions as to how the product should be used or suggestions as to the variety of ways in which the product may be used. Obviously, instructions or suggestions of this nature cannot be carried by the package label itself, for that must be kept simple in every respect and used almost exclusively as a mark of identification to aid the consumer in selecting the packer's product. There are two methods, however, which may be used to overcome the limitation of the package label proper in this respect. The first is the use of a second label and the second the use of lithographed caps or closures.

If the second label is used it should conform to the package label insofar as the color combination used is concerned. Otherwise it should be as plain and practical as possible. In most cases an upright oblong label placed on the back of the container will best serve the purpose. The instructions for use should be made as simple and clear as possible, for it must be remembered that the consumer in buying package merchandise is buying for immediate use and trying to avoid as much as she can the work involved in the home preparation of food.

Likewise, if the second label is used to suggest new ways in which the product may be used, it is desirable to hold to those uses which are quick and convenient rather than to list others which, while good, are complicated.

LITHOGRAPHED CAPS or closures can be used for the same purposes as the second label and packers are beginning to see the desirability of this practice. In the first place, the lithographed cap lends distinction to his package and at the same time eliminates the cost of extra labels and likewise the cost of applying them. However, regardless of whether use instructions or suggestions are considered necessary and desirable, the lithographed cap or closure is coming more and more to represent the highest development of the glass packing art.

In the case of lithographed caps, it is possible to carry standardization even further than in the case of labels. It is generally found desirable to adopt a uniform design and color combination for all caps, for when this is done the cap can be used with any product and thus it is unnecessary to stock a large number of caps with a variety of lithographed designs to match each product packed. The same predominant color should be used on the caps as is used on the labels. However, it is frequently possible to produce lithographed caps which will harmonize perfectly with labels without using as many colors as are found on the labels.

Mailing Containers

By RALPH L. HARDEN

WHEN OVER 500 PAGES of the Official Postal Guide, published by the Post Office Department, is devoted to rules and regulations, it may be readily seen that there are many restrictions placed upon the postal shipper. This means that your postal shipping problem cannot be thought of in terms of "just a box" but rather as the right type of box for the particular class of mail used or product shipped.

The time is past when a litter of old "empties" on the shelf will answer all the demands of the shipper. Today, with all the complexities of transportation, your package takes no pleasure jaunt or tour de luxe in its travels to your customers. In the sorting room, on the mail trucks or in the mail car of the limited, it is rammed, crammed and slammed. The mail clerks play no favorites—big ones, fat ones and skinny ones crowd, punch and squeeze each other. Yours is among them—the survival of the fittest. Time is the important factor in the postal service; schedules must be maintained at all costs. Hence, no kid gloves are used. You, therefore, must use a container that is strong enough to stand the strain, yet light enough not to cost excess postage. It must comply with all regulations regarding the class of mail by which it is sent and have the approval of the Post Office Department.

The following are descriptions and illustrations of the more common types of mailing containers:

The Parcel Post Box: This box is used for all unsealed mail and because of the metal fasteners that securely close the box requires neither wrapping nor tying. The most widely used type of mailing container because of its simplicity, exceptional lightness and great strength.

The Fourth Class Box: This box is made to meet the demands of shippers using sealed Third and Fourth Class mail. An exceptionally strong box which, in addition to the metal fasteners on the sides of the box, has gummed flaps at each end which allow it to be sealed. The gummed flaps are an integral part of the box itself and are usually imprinted with a safety tint which prevents tampering without detection.

The Registered Mail Box: This box is made in a style and weight to meet the exacting demands of the Post Office Department for registered mail and requires no wrapping or tying. Usually made from extra heavy stock to give added protection; it is sealed by means of gummed flaps on the sides and ends. These flaps are printed with a safety tint which prevents tampering without detection.

The No-Break Box: This box is usually made in two styles; one with metal fasteners for unsealed mail and one with the sealing flaps for sealed mail, the basic construction, however, being the same. To the regular mailing box is added an inner lining of double faced corrugated board making absolutely the strongest mailing box obtainable. This type of box is extensively used for fragile goods, diamonds and jewelry, glassware, electrotypes and all products that need maximum protection.

The Letter Box: This is a two-compartment container that allows the first class letter or bill to be mailed together with second, third or fourth class matter and reach the addressee at the same time. The envelope compartment on the top of the box is an integral part of the box wrap. The window in the envelope compartment allows the address of the letter to serve also as the address on the envelope and box. The box is closed by means of metal fasteners. Extensively used for catalogs.

The Returnable Box: This box is made in two styles, both having the same general purpose of allowing the recipient to make convenient return to the sender. There is a cut-out in the cover through which a reversible address card shows. For memorandum or returnable shipments it is only necessary to reverse the printed address card and the box is ready for the return trip. Addressing and stamping for both forwarding and return can be done before the box is shipped on its original journey.

Screw Cap Containers: For shipments of liquids over four ounces, the Post Office Department requires that they be mailed in a water-tight tube closed by means of a screw-top cover with sufficient screw threads to require at least one and one-half complete turns before it will come off. Bottles must be surrounded with bran, wadding or other absorbent material in sufficient quantity to absorb all the liquid in case of breakage.

The Rigid Mailer: For photographs, sketches, proofs or any matter that must be shipped flat, this type of mailer should be used. A single piece of double-faced corrugated board incorporated with a wrap of heavy kraft paper allows the package to be shipped either sealed or unsealed.

The Locked Box: A novel tamper-proof box, known as the "Everlokt," which embodies a positive lock and is obtainable in various sizes. This box goes out by first class bonded mailing and after it is once sealed cannot be opened without destroying. A similar type can be used for third and fourth class mailing under an arrangement with the Post Office Department that provides for inspection and subsequent sealing.

Generally speaking all mailing containers fall into the above classes. Unusual products sometimes call for special treatment but their design incorporates one or more features of the above styles.

Manufacturers normally figure shipping expense at about 4 per cent of the total cost of doing business. How to keep shipping costs down has always been an important problem for manufacturers and merchants. Expensive as shipping may be, still more expensive is the replacement of goods injured or destroyed in transit. Protection is all important. See that your mailing containers are provided with this prime requisite.

Tables for Figuring Boxboard

(Continued from page 36)

GAUGE LIST NO. 4

For pasted chipboard

Basis 26 x 38	No. 1 Finish Medium	No. 2 Finish Thin to No. and Smooth	No. 3 Finish Extra Smooth
No. 10.....	.212	.200	.180
" 15.....	.142	.133	.120
" 18.....	.113	.111	.100
" 20.....	.106	.100	.090
" 22.....	.096	.090	.082
" 25.....	.085	.080	.072
" 28.....	.076	.071	.064
" 30.....	.070	.067	.060
" 35.....	.060	.057	.051

GAUGE LIST NO. 5

Container board

Basis 26 x 38	No. 3 Finish	Test
No. 15.....	.120	300 lbs.
" 18.....	.100	275 "
" 23.....	.080	200 "
" 29.....	.060	175 "

Furnished in 2, 3 or 4 ply pasted and conforms to railway and express requirements.

GAUGE LIST NO. 6 AND REAM WEIGHT TABLE

For patent coated, chip back; patent coated, news back; patent coated, news center, manila back; patent coated, solid manila back; patent coated, blue back; solid manila board.

Caliper Thickness	Basis 500 Sheets 24 x 36 (864 sq. in.)	Basis 500 Sheets 25 x 40 (1,000 sq. in.)
.011	154 lbs.	178 lbs.
.012	168 "	194 "
.013	182 "	210.60 "
.014	189 "	217.60 "
.015	195 "	225.69 "
.016	208 "	240.70 "
.017	221 "	255.78 "
.018	230 "	266.20 "
.019	238 "	274.88 "
.020	245 "	283.56 "
.021	252 "	291.66 "
.022	264 "	305.55 "
.023	276 "	319.44 "
.024	288 "	333.33 "
.025	300 "	347.21 "
.026	312 "	361.10 "
.027	324 "	374.99 "
.028	336 "	388.88 "
.029	348 "	402.77 "
.030	360 "	416.65 "

Furnished wrapped in reams or half ream bundles.

Cartoning Machinery

By Charles L. Barr

CARTONING MACHINES* has come to be descriptive of machines that automatically place solid and semi-solid objects in folding paper cartons. Examples of products that machines of this group handle are collapsible tubes (tooth paste, shaving cream, remedies, etc.), bottles, jars, bars of soap, candy, and chocolate, chewing gum, safety razor blades, tooth brushes, radio tubes, and an almost unending variety of products similarly prepared for retail sale.

Outstanding progress in the design and development of cartoning machines has been accomplished during 1930. This progress is marked by the following:

1. Improvement in design and construction that make higher speeds possible. Whereas 18 months ago speeds of 100 per minute were discussed often and occasionally attained, now speeds of 150 to 180 per minute are in some cases a daily production fact, and speeds of 100 to 120 per minute are as common as was 60 per minute 3 years ago.

2. The development of adjustable machines capable of handling more than one size of carton and product. Installations put in production during the past year prove beyond question their complete reliability and efficiency. Some features that will surprise those who have experimented with adjustable machines in years past are listed below.

   (a) Speeds and efficiencies, although not equalling, closely approach the speeds and efficiencies of single size machines.
   (b) To change from one size to another usually requires about 30 minutes or less on machines of most recent development.
   (c) The quality of work fully equals that of single size machines.

3. The development of combination machines of various types. The following are examples:

   (a) Combination cartoning machine and transparent cellulose wrapper. (Examples: safety razor blades, candy bars.)
   (b) Combination labeling and cartoning machines for vials, etc.
   (c) Combination wax-wrapping and cartoning machines.
   (d) Combination machines that wrap the product in protective paper and then carton it. (Examples: bars of soap, chocolate and candy.)

The value of combination machines such as these lies in (1) their saving in floor space; (2) the elimination of labor handling products between units; (3) elimination of the operator on the second unit, and (4) the centralizing to a greater extent of responsibility for the operation of all packaging machines in a production line.

4. The development of automatic feeds for cartoning machines. Examples: (1) The latest cartoning machines for handling bottles up to, say 12-oz. size, carry the bottles in standing upright just as they leave the usual type of labeling machine, eliminating the hand feeder at this point; (2) automatic mechanisms for feeding collapsible tubes into cartoning machines have also been developed during the year.

Little need be said about the need for care in the manufacture of the cartons and other products handled by cartoning machines. Cooperation between cartoning machinery manufacturers on the one hand, and the producers of cartons, circulars, corrugated protectors and like products has been so excellent as to practically eliminate the hazard of not being able to obtain products of suitable quality for machine use.

The popularity and use of the standard types of glued-end and reverse tuck cartons continues to increase. No new types have been offered that compete with them. The straight-tuck or aeroplane type of carton is less popular because of the slight additional cost, and because the glued seam adjacent to the front panel of the carton (which, for reasons of economy is necessary in one-half of every run of this type of carton) is objectionable to many users.

The increasingly important field of vending machines has had considerable attention from manufacturers of cartoning machines during the past year. It has been definitely proved that vending machines are much more reliable in operation when the product to be vended is placed in a carton of proper design. Bars of candy, pies, sandwiches, safety razor blades, and sanitary pads are a few of many products that are being successfully vended. Most of these products are not ordinarily retailed in cartons. It has been found, however, that placing them in cartons permits successful vending.

* It should be understood that the descriptive term "Cartoning Machines" used in this article does not include that group of packaging systems, including weighing units, lining units, cartoning units, etc., used for packaging coffee, cereals, soap chips, flour, and the like. This group of machinery will be found adequately treated elsewhere in this volume.

Acknowledgements

(*Continued from page 29*)

nomic Machinery Co., Exact Weight Scale Co., Robert Gair Co., General Plastics, Inc., Glass Container Association of America, Glazed & Fancy Paper Manufacturers Association, Karl Kiefer Machine Co., Kimberly-Clark Co., McDonald Engineering Corp., Mason Box Co., New England Box Co., National Paper Box Manufacturers Association, O. & J. Machine Co., Package Machinery Co., Paterson Parchment Paper Co., Inc., Peerless Roll Leaf Co., Peerless Tube Co., B. F. Perkins, Inc., Phoenix-Hermetic Co., Pneumatic Scale Corp., F. B. Redington Co., Reynolds Metals Co., W. C. Ritchie Co., Rochester Folding Box Co., A. D. Shoup, Inc., Sterling Closure Co., Stokes & Smith Co., Synthetic Plastics, Inc., Union Bag & Paper Co., U. S. Bottlers Machinery Co., Westfield River Paper Co., Inc., and Young Bros. Co.

Automatic Wrapping Machines

By ALDEN FRENCH

AUTOMATIC WRAPPING MACHINES play a vital part in the production of a wide variety of packages. Articles that we use every day would not come to us in their protective and handsome wrappings were it not for the development of high speed labor-saving machinery whose economies make it possible to sell these packages at low prices. Take, for example, a package of chewing gum. You would not for a moment consider buying it unwrapped. Think of what a machine has to do to turn out this package.

The latest type of chewing gum wrapping machines first wrap each stick in foil or paper and then put a band around it. Five sticks are then automatically assembled, wrapped in wax paper or foil, the seams being sealed by the application of hot wax, and the completed package is then wrapped in a printed band. The machine is capable of turning out a ton of gum a day with only two operators. The saving in hand wrappers and in floor space which is effected by this machine, to say nothing of the fact that the machine does the work better and more neatly, are indeed noteworthy accomplishments.

The tobacco industry has proved one of the largest users of automatic wrapping machines. Most of the well known cigarette packages are wrapped in transparent paper, which is put on by an automatic machine at the rate of 100 a minute. The same type of machine has been adapted for wrapping packages of smoking and chewing tobacco in wax paper, sealing the seams by heat. Cigarette cartons and cigarette packages are also wrapped automatically in some form of transparent wrapping.

In the soap industry such complicated types of wrapping as are seen in Cuticura soap and Woodbury's Facial soap are accomplished easily and rapidly. The soap is inclosed first in a piece of cardboard, then a folded circular and next a single sheet circular, all of which is fastened firmly around the cake with a sticker which is automatically applied by the machine. This package is then wrapped in a printed wrapper which is glued and the soap is discharged ready to be packed. Palmolive and Lux toilet soaps illustrate other types of wrapping that are done automatically and at high speed.

Perhaps the most difficult of all articles handled by automatic wrapping machines are the products of a large bakery. Packages of crackers, both square and round, are sold in cartons. Generally speaking, the crackers are packed by hand into boxes, then wrapped by machine and finally packed by hand into bundles containing a dozen or so cartons. Recent developments, however, have greatly improved the packing methods, eliminating much of the hand labor by substituting automatic machinery to pack and wrap the crackers.

Such products as tooth paste, cracker cartons, and shaving cream, which are packed in units of six or a dozen and shipped in cardboard boxes, can be wrapped now by an automatic machine in a heavy kraft paper. In this way considerable savings are effected both in hand wrapping costs and in the cost of materials.

Bundling machines are used for cigarette boxes, match boxes, baking powder, ginger snaps, tapioca, graham crackers and a wide variety of goods which are sold in small packages.

Soft, iced cakes fresh from the icing machine must have some sort of wrapping. When the cake bakers were asked if they would be interested in a machine to do this work they said, "It can't be done." But they were wrong. Practically all large cake bakers are now using automatic wrapping machines for their box cakes and for cup cakes, wrapping them in waxed paper and sealing by means of electric heaters. The machines handle the cake so delicately that they do not mar the frosting and they wrap evenly and securely the ordinary run of the cutting machines. Plain wrapped slices sell much better when the wrapper is securely sealed in place. Where the cakes are also to be cartoned by machine it is doubly important that the waxed wrapper be firmly sealed.

PERHAPS THE MOST INTERESTING recent development in automatic wrapping is in the strides made during the year in handling moistureproof transparent cellulose. One example of this is the automatic cigar wrapping machine, which takes the cellulose from a roll and wraps it about each cigar folding and sealing neatly and tightly. This machine has found favor with cigar manufacturers, as it has enabled them to take advantage of the beautifying and protective qualities of moistureproof wrapping at a lower cost than ever before. Other products as well as cigars can now be wrapped automatically in this material due to recent developments in adhesives. The gluing problem was for a long time a tough obstacle to machine wrapping, but this has now been overcome to a considerable extent and satisfactory results are being obtained.

Another recent development is the use of the photo-electric cell, or electric eye, as it is popularly called, in registering the printing on labels that are fed and cut from a roll. Various schemes have been tried to accomplish this but none have been wholly satisfactory. The electric eye, however, which actually sees the printing, can be made to control the cutting mechanism to a high degree of accuracy. This device has been tried out on both waxed paper and trans-

parent cellulose with results that are most encouraging.

The industries mentioned in this article are only a few in which automatic wrapping machines are used. Candy, clothespins, collars and cuffs, face powder, razor blades, shaving cream, tooth brushes, spark plugs, bias tape, and dry ice are a few other products that are now being wrapped automatically. This wide range of articles testifies to the large field that is being served by automatic wrapping machines which are now available in a greater variety than ever before.

Wax Wrapping of Packages

By A. H. AXBERG

THE YEAR of 1930 will stand out as one of the most important in the development of automatic wrapping machines, as related to the handling of wax paper, in that three new types of machines were developed and are in successful operation.

One of these relates to a machine which is hand operated. An attendant feeds sheets of wax paper to a fixed position with her left hand, and with her right hand places the package to be wrapped in the receiving cage, after which the simple operation of tripping a lever with the right hand releases a clutch and starts the mechanical operation of drawing wax paper snugly around the package, making end folds and securing the end and longitudinal seams by the fusion of the wax, through the use of electrical heating plates, in a fully automatic manner. This new unit "bridges the gap" for the manufacturer who has no use for a fully automatic machine, but still could use economically and advantageously a unit of this type, having a capacity up to twenty wrapped packages per minute, to take care of his production. Its quick adjustability covering a wide range of sizes, small amount of floor space required, plus the fact that it can be easily pushed from one department to another, and finally can be purchased at less than one-third the cost of a fully automatic wax wrapping machine, are the reasons for its tremendous popularity.

There are some manufacturers who in the wax wrapping of their packages feel that its incomplete transparency, slightly changing the color effect of their printed package, has advantages in that it indicates immediately to the purchaser that additional protective wrapping has been applied to the package. However, there are those who hold varying opinions on this and have been insistently demanding greater transparency in connection with the outer wax wrapping of the package. This demand has been met in two ways. One with wax paper which is practically 100 per cent transparent; the other, in the development of a fully automatic wax wrapping machine which handles printed wax paper in roll form and instead of the usual running design the full design normally appearing in three or more colors on the carton is carried on the wax paper. With the use of the photo electric cell and mechanism for stepping up or retarding the unwinding of the paper, the printed design can be accurately cut from the roll and registered within one-sixteenth of an inch of accuracy on the package. This machine has been termed a "spot design wax wrapper" due to the accuracy with which the printed design on the wax paper is registered on the package. Obviously this type of package has advantages. A plain single manila lined chip board shell can be used for a carton, which in turn means low purchase price and the combination of the plain, unprinted shell, plus the printed wax paper wrapper, and may be obtained at about the same cost as the original printed carton. The handicap of transparency has, therefore, been completely eliminated, as the sharp color effect in three or more colors can be as attractively printed on the wax paper as on the carton itself, and this type of package produces the important features of being tighter, neater and carrying the extra protective features of the wax paper.

IN THE PAST there has been a tendency to use lighter weights of wax paper to obtain the value of transparency. This new "spot design wax wrapper" will make it possible to run much heavier wax papers without any sacrifice of the appearance of the package. The machine itself occupies the same floor space as the standard wax wrapping machine and has a capacity of sixty wrapped packages per minute.

As the popularity of this package increases the use of this type of machine it will doubtless prove that printing the design in roll form offers a much more positive means of feeding the paper to the wrapping machine than where sheet feed is employed; also where the wrapper can be applied to the package without the use of glue it produces a more efficient and simpler operating machine and evades the possibility of passing moisture to the product, as is the case where an adhesive is used for securing the wrapper to the package.

The third important development is the quick adjustability that has been built into the fully automatic wax wrapping machines, which has meant complete redesigning of the equipment so that these quick adjustable features are a reality, and when once the change has been effected it remains in that position so that continuity of production of neatly wrapped packages is available without continuous adjusting of

the machine. In the past where several hours were required to change the machine over from one size to another, the change can now be accomplished in 15 to 30 minutes by a person not necessarily a mechanic. The major changes are effected by the turning of a hand wheel and pushing three levers. With this new machine the manufacturer can now purchase an adjustable model for handling a range of sizes with the complete assurance that the work produced on any one of the sizes will be equivalent to the work he could secure had he purchased a one size machine for each size.

To the prospective purchaser of automatic wax wrapping machines it is suggested that all types of machines available on the market be carefully investigated as the purchaser will find by such investigation that there is a particular model best suited for the wrapping of his particular package in the manner required for his business and at the speed to take care of his production.

Check-Weighing of Packages

By H. D. GINTER

ONE KIND OF WEIGHING deals with unknown quantity and its computed money value; the other kind of weighing embraces known or predetermined weight. To the latter this discussion particularly refers, and in any comprehensive analysis we need to remember that the working capital of business is money today and merchandise tomorrow.

Money as currency is easily counted but money in the form of bulk merchandise depends entirely on scales for its resale profit. One dollar in money is one hundred pennies always, but one hundred pounds of merchandise is as many one-pound packages as scales plus labor can get out of that bulk weight. It is an accepted axiom that the first ninety-seven packages out of every hundred should bring back the original merchandise investment. The next three should be all-profit packages.

Just as readily conceded is the proposition that the first ninety-seven packages are easily obtained, but it takes a real scale to get the all-profit three. Its concise arithmetic is the loss of all profit on one-pound packages if they average ½ oz. overweight, or a 3 per cent deficit. Consequently, the weighing of predetermined weights is different from ordinary weighing, and it requires different scales which will provide the closest possible visible accuracy. Otherwise, thousands of packages will make hiding places for undisclosed profit leaks.

In volume production speed with accuracy are essentials, but the human element in weighing is tempted constantly to sacrifice accuracy for speed. It follows that with ordinary weighing equipment average labor either will give away merchandise or it will place a firm's name in bad repute for short weights. In comparatively recent years scales of fast weighing, even balance type have been perfected to meet this emergency and simplified operations rapidly are replacing former methods. They make weight errors instantly visible. Many of these precision instruments provide for commercial weighing a degree of accuracy which rivals the analytical balance, permitting economic volume production.

Collapsible Tube Filling

THE CONSTANTLY INCREASING USE of collapsible tubes is due in no small way to the ease of operation and flexibility, as to changes in size, of the modern tube filling equipment. A complete outfit for filling, closing and clipping collapsible tubes may be purchased for as little as $130 and this will perform these operations at 15 to 20 tubes per minute. The small user of collapsible tubes is thus almost as efficient, right from the start, as the larger user. A complete range of equipment of various sizes is available without the necessity of building any special equipment. For less than a thousand dollars a complete outfit to turn out 35 tubes per minute can be had. As production warrants, this output can be increased to sixty or eighty tubes per minute. A new completely automatic filling, closing and clipping machine operates at speeds up to 140 tubes per minute with one operator and is designed to feed directly into automatic cartoning machines.

Considering the work they perform, modern tube filling, closing, and clipping machines are remarkably simple and can be maintained in proper operating condition by careful employees. No unusual mechanical skill is required in making the various adjustments for different sizes of tubes, and if those considering the use of this equipment for the first time will put their problem up to a reputable maker of this class of machinery, they can rest assured that the machines will perform to their satisfaction.

The selection of tube filling equipment depends on

three important factors: first, the consistency of the material at the time of filling; secondly, the range of sizes of tubes; third, the daily production which is to be anticipated by the plant.

If possible, materials such as cold creams, ointments, etc., should be filled in a warm fluid condition, as much simpler filling units can be employed. At the same time, it is unwise to fill tubes with any material in a warm state, should the material shrink considerably on cooling. This shrinkage will buckle the wall of the tube, giving it a partially empty appearance, which is undesirable in the eyes of the ultimate purchaser.

It is also common for a tube user to attempt to overfill a tube in order to give a "fat" appearance and impress the purchaser with the quantity of material he is getting. This over-filling of tubes is efficiency's greatest enemy as it is necessary to stop frequently and wipe off the jaws of the closing devices. In addition to this, these tubes are most liable to leak after being on the dealers' shelves under unusual climatic conditions. A properly filled tube has sufficient flap on the closed end to allow material to expand without seepage through the closed and clipped ends. An "overfilled" tube will usually have a layer of the material inside the fold of the tube, and if the material is even mildly corrosive, such as a shaving cream, the tube decoration and the polished clip will soon be spoiled in appearance.

The closing of tubes is usually done with two folds. The end of the tube is flattened, a portion of it turned over, and pressed flat. This operation is then repeated, all automatically, of course. For material, such as lighter fluid, rubber cement, rubber solvents, etc., containing highly volatile material, it is sometimes advisable to make the first portion turned over wider than usual, with the second fold the regular width. This gives eight thicknesses of material rather than the six thicknesses obtained with the regular fold, and in reality makes the seal fifty per cent more secure.

After the closing operation, the clipping is performed. This guards the end of the tube and prevents accidental opening of the folded end. Tube clips are cheap and are applied automatically by most users. At the time the clip is applied, a control number can be stamped on one side of the clip if desired. Ejection of the tubes from the machine after the three operations of filling, closing, and clipping are performed, can be automatic or manual as desired.

Labeling Machines

LABELING MACHINES have been developed along with the filling, screw-capping, cartoning and wrapping machine to such an extent that they are of equal importance to the manufacturers for many reasons. Nor is their sphere limited only to the food, drug, chemical, toilet preparation and bottling industries, but they find their way into the cigarette and cigar factory, hardware, hosiery and almost every line where labels are used. Mop and broom handles are now labeled by machines, likewise insecticide sprayers and wet-stones.

Some of the advantages of the modern labeling machine are the following: It produces a large output, occupies a comparatively small floor space, labels neatly, accurately and uniformly.

Labeling machines may be classified, first, as semi-automatic and automatic and the latter as rotary, straightaway and can labelers. The semi-automatic labelers were designed primarily for the labeling of beer and similar bottles, but their use today covers almost the entire labeling field. They are in greater demand today than ever because even the small manufacturer believes in machinery for its economy and superior quality of the work performed. The semi-automatic labeler, however, requires an operator to feed each package or container to be labeled. The article is placed into the machine by hand, the label or labels are applied and then the article removed from the machine by the operator. The speed of these machines being limited to 25 to 35 articles per minute or less, depending upon the character of the article and the energy of the operator, led to the development of the fully automatic labeling machine. Nevertheless, the semi-automatic labeler will always be popular and profitable for small production and where short runs of many different sizes and shapes of packages must be labeled.

THE AUTOMATIC ROTARY labeling machine, which is an outgrowth of the semi-automatic, gums the label and applies it in a similar manner, but it has incorporated conveyors for feeding the articles through the machine without handling by the operator and therefore is much faster than the semi-automatic labeler, attaining a speed of 85 to 90 per minute. A recent important improvement in this type of labeler is the attachment for applying tinfoil around the neck of ginger ale and like bottles. They are furnished by several concerns and are particularly adapted to the labeling of round bottles and jars used in the bottling and food industries as well as some chemical and drug products. They apply on bottles, the body label only, the body and neck label or the body and neck labels and the tinfoil.

THE STRAIGHTAWAY type of automatic labeling machines, which are of more recent design than those above mentioned, go further into the general field of labeling because they can be adapted to

sealing or labeling cartons, boxes, wrapped cakes of soap as well as the food, drug and bottlers' products. They have many advantages in the way of speed, accurate registration, cleanliness, adjustability and accessibility. They are built in two standard types known as single and double labelers, both of which types are also furnished in the duplex models.

The single labeler applies one label on one side of the package or container and the double labeler two labels on opposite sides simultaneously. The single duplex labeler applies one label on each of two packages or containers at the same time and the double duplex four labels on both sides of two articles simultaneously. In other words, if these machines are running sixty revolutions per minute, the single will apply 60, the double 120, the single duplex 120 and the double duplex 240 labels per minute although the machine is running comparatively slowly.

The duplex labeler is a recent development born of the insatiable American demand for speed and production. In order to keep pace with the filling, capping, cartoning and wrapping machines, all of which are often hooked up with an automatic labeler in a straight-line production unit, it was necessary to get greater output from the labeler without applying the glued label in less time. It requires time to apply glue to the label and more time to make the label adhere properly to the container, therefore the slow running duplex labeler can do a better job than the single machine speeded up which seemingly throws the label at the package without sufficient time to apply it properly.

NO LESS IMPORTANT is the perfection of another automatic labeling machine for round bottles where the name of the product appears in raised lettering on the bottle. In such instances it is an absolute necessity to "spot" the label in a determined position in order that every package will be labeled and look alike with respect to the lettering in the glass. Previously this was done by hand or on semi-automatic machines where the best was a good guess at the proper spot for the label. Some manufacturers have discarded their trade mark on the bottle because of the inconvenience in placing the label accurately and automatically. To bring more forcibly to mind what the spotting labeler can do, just stop to look at the "Vaseline" and "Listerine" bottles in your medicine cabinet. Such bottles can now be adopted where the name of the product is in the glass to tell you what it is after the label is destroyed and with the knowledge that they can be properly labeled by fully automatic machines.

Regarding the quality of the labeling done by hand and by machine, we often hear a manufacturer say that no machine can do this work well enough. Let us illustrate by referring to the labeling of cigar boxes which are perhaps some of the best labeled packages in our showcases. The labels are beautiful, of many colors, embossed and cut neatly and accurately. Until recently they were applied by hand, which almost ruined their good appearance and lustre. Because—paste was used instead of glue it soaked the label and destroyed the colors. Then it was placed by hand and wiped on with a rag which killed the embossing and smeared the colors. Today the automatic machine applies thin glue quickly, applies the label at once and places it even more accurately than the hand. The result is that the moisture in the glue does not have time to penetrate the label, therefore the embossing and colors remain just as the printer made them.

Incidentally, it might be said here that 95 per cent of a cigar box can be made on automatic machines which insure their uniform shape and size just as the machine made bottle is uniform, which requisite is most important for machine handling. Unless uniformity in size and shape is obtained, efficient labeling is impossible.

Where full length labels which overlap are applied to round containers, the universally known automatic round package labeler is in general use, one type of machine being for hermetically sealed, friction lid and screw top containers while another is for slip cover containers. One or the other types of machine are employed in the food packing and kindred industries, including paints and specialties and the other in most of the coffee plants as well as several salt factories. Cans with ears such as large packages of paint are also automatically labeled through utilizing a full length label which overlaps and is died out to encircle the ears, this supplanting the front and back label formerly used. Glass containers have also come within the scope of the automatic round container labeler, nationally known products like Sal Hepatica being labeled on this type of machine as well as glass containers of insecticides, toilet preparations, fruit juice, etc.

This type of machine can operate at a speed of from 150 to 250 or more packages per minute because of the fact that the packages are rolled through and a comparatively simple and speedy form of mechanism can thus be utilized, hence the automatic round package type of labeler is the speediest mechanical medium available and fulfills all the necessary requirements.

MODERN FACTORY PRACTICE has demonstrated the importance of machine production and that manufacturer is wise who leaves no stone unturned to place all of his manufacturing on a machine basis. The use of machinery in the finishing or packing department is as important as in the actual processes of manufacture and the manufacturer who extends his machine methods to these departments is bound to profit more than the one who does not.

In general, a labeling machine can be equipped with attachments to handle a manufacturer's package without alteration but occasionally a minor change in container or label will simplify the work and enable the

labeling to be done with a minimum of care. Where new packages or labels are designed it is well for the manufacturer to bear in mind a few simple facts that will enable him to favor the labeling machine and to operate under the most ideal conditions. The best labels are made from thin paper, soft and comparatively light in weight so that they will conform easily to the shape of the container. The surface of the container should be such that the label will naturally follow the contour without wrinkling. A spherical surface is impossible for the label must curve in two directions and will not lay smooth. Where hexagonal, octagonal or similar containers are used the size of the label should be such that the edges of the label should extend well over the corners of the container and on the flat sides to prevent the edges of the label from becoming loose after the label has been wiped on and the container removed from the machine.

Carton and Can Filling Equipment

By WILLIAM K. EMBLETON

THE DEVELOPMENT and perfecting of automatic machinery enables the packer to obtain quantity production at lower costs, to standardize the sizes of his packages, and enable him to carry to the consumer, through the message printed on his package, a standard name or trade mark by which the consumer can again seek his particular brand of products. This insures the packer his reward for maintaining qualities.

Automatic machinery is the foundation on which the structure of many American merchandising successes has been reared. Slow and costly hand production methods have eliminated many manufacturers from competitive markets.

There is no necessity for any manufacturer to depend on hand labor in preparing his package, as American machine designers in the last decade have developed and refined automatic machinery for every packaging purpose to such an extent that today a machine is obtainable whether the packaging process follows standard practices or is of a special nature.

Inasmuch as machinery must be considered somewhere in all packaging production plans, the first consideration is the positive necessity for careful attention and preparation of the various component parts in the make-up of the package.

This thought cannot be stressed too highly. All materials entering into the make-up of the package should be purchased with a view to their efficient handling by automatic machinery.

As for instance, in considering a carton product, the size of the carton should be carefully worked out to obtain the best dimensions for easy machine handling. The construction of the carton should be carefully planned to be sure that the side gluing seams are in proper position, and the side flat cut to the proper length. Careful attention to these details in the beginning will save both the packer and the machine manufacturer a great deal of trouble and grief when the time comes for installing machinery.

This does not mean that cartons, protective papers or labels for machine handling differ importantly from the same materials that would be used for hand packing. It simply means that there are certain necessary features and specifications to be followed to make sure that all materials will follow uniform lines. All cartoning materials handled on automatic machines are manufactured on accepted commercial standards, but it must be borne in mind that a machine is made of iron and steel, along fixed lines, and if the material fed to the machine differs in size and shape, then trouble is bound to ensue.

As an illustration, if sealing and filling were the only consideration, a carton might be planned to obtain the largest possible face, perhaps because an advertising advantage might be seen. In doing so, the base of the carton would necessarily have to be narrow, so much so that when handled on a machine, this narrow base would mean a constant tipping of the carton, with its attendant troubles and delays.

Therefore, in planning a carton, care should be taken to have the various dimensions properly proportioned. The ideal specifications are to have the face of the carton approximately twice the thickness, the height one and one-half times the width. The cubic content of the carton must be carefully considered. If a pound of ground coffee is to be packed by hand, a carton containing about 66 cu. in. would be sufficiently large for the reason that there is no time limit to the tamping or settling of the coffee, whereas if the carton were handled by machine a cubic content of 72 cu. in. would be necessary for the reason that the carton passes through the machine on a certain definite time schedule and receives a definite amount of tamping. Machine experience proves that with a carton containing 72 cu. in. a pound of ground coffee would settle nicely just below the score or folding lines of the side flaps.

IN THE MATTER OF LABELS and wrappers care should be exercised in obtaining them with the grain of the paper running the same as specified by the machine manufacturer. Paper curls with the grain of the paper and when labels or wrappers are moistened, the paper stretches with the grain. If the labels are handled by hand, sometimes it is not important which way the labels curl or the way the paper stretches, but if handled by machine the curl

and stretch must be one way, and the same with every label.

Label and wrapper manufacturers are always glad to follow definite specifications for grain of paper when so ordered. Again, it is simply a question of care in ordering and being sure that the specifications are correct.

Any manufacturer of automatic packaging machinery will be glad to furnish definite specifications covering the construction of cartons or the make-up of labels. Securing these details will save many weeks of labor later on when machine production is planned both on the part of the packer and the machine manufacturer.

Many packers hesitate in the beginning to think of using machinery, believing that automatic machinery will prove too expensive for their purpose. Investigation will prove this is not true, as machine manufacturers are able to furnish equipment that will economically fit in with the requirements, not only of the larger packer, but also with the packer whose output is small.

The market today offers everything from inexpensive semi-automatic equipment, which operates at comparatively low speeds, to the highly specialized fully automatic equipment, operating at the higher speeds, and no matter which class of machinery is used, they are all planned so that with their use, outputs can be obtained more efficiently and economically than by hand labor.

Packers just establishing a carton packaging business can install a semi-automatic carton sealing machine. This would require the services of an operator and would produce from 12 to 15 satisfactorily sealed cartons per minute. For the weighing operations, he can obtain a small semi-automatic weighing machine which will operate at the same speed as the carton sealing machine. These two machines can be hooked together by connecting conveyor belts so that, as the cartons are sealed, they are automatically passed along to the weighing machine. An operator would be necessary at the weighing machine, but even considering the investment of the two machines, the upkeep charges and the labor costs of two operators, packages can be produced at a far less cost than the same number can be produced by hand labor.

As outputs increase, speedier and more fully automatic equipment will be needed. The semi-automatic machines can then be discarded in favor of a battery of machines with which can be performed the entire operation of picking up the cartons one by one, feeding them to the sealing machine, then automatically passing them to the weighing machine and, after the material is weighed and filled into the sealed cartons, passed to the sealing machine for closing and sealing the tops.

Should the product be of a character to require extraordinary protection against atmospheric or other conditions an inner paper bag liner would have to be used. This lining would require an additional machine placed between the bottom sealing and weighing machine, the lining machine taking paper from a roll, cutting off the proper length, forming the bag and inserting the finished bag into the carton.

A set of machines of this character would make the entire packaging process entirely automatic, only one attendant being necessary to see that the machines are properly oiled and kept in good running order.

Equipment as above described would deliver thirty complete sealed, lined and filled packages per minute.

FOR THE PACKER whose output exceeds 15,000 packages a day, equipment of higher speeds will be necessary and equipment at 60 packages per minute will interest him. This high speed equipment performs the same operations in the same manner as described for 30-per-minute equipment in the same general line-up, each individual machine, however, is more sturdily and elaborately constructed, and naturally, this heavier equipment is considerably more expensive than that operating at the lower speed of 30 per minute.

The equipment just described would be used by the manufacturer packing in the plain printed carton, used without any outer wrapping. Materials such as tea, coffee, spices, sugar, rice, borax, coconut, drugs, poultry and stock remedies, macaroni, starch can be packed without any further protection than the printed carton, with sometimes the inner lining.

In many instances the character of the material packed may demand a package that would offer greater strength than the printed carton, and would also embody superior protective features. The modern machine designers have met this higher requirement with a machine called the tight wrapper, which produces the highest type of package yet devised. This is made of an inexpensive chipboard shell which is formed, lined, filled and sealed in exactly the same manner as the printed carton on exactly the same machines, after which it is automatically passed along to the tight wrapping machine which applies a printed wrapper around the chipboard shell. Adhesive is applied all over the entire surfaces of this wrapper. It is then registered to each of the four panels of the shell and neatly turned in at each of the ends. This printed wrapper, as it dries, shrinks tightly to and adheres to every portion of the chipboard shell and becomes almost an integral part of the shell.

This process of laminating the shell and wrapper produces a package fully 50 per cent stronger than ordinary printed cartons, and is particularly to be recommended where the product packed is of a dusty and sifting nature, for the reason that by placing the wrapper around all of the sealed edges of the shell, it closes every crevice and corner. It is literally a "tight" wrapped package, positively sift-proof and the only package yet devised that is proof positive against the inroad of bug and weevil life.

The above treats of rectangular packages only. Separate types of machines are necessary for producing round packages, but as in the case of the rectangular package, automatic machinery can be obtained for every process in the make-up of the round package, first weighing material and filling it into the package, then applying the cans and labeling.

As in the case of the rectangular packaging machines, round packaging equipment is manufactured in various types, ranging from the semi-automatic at slow speeds to the high speed fully automatic equipment operating at a speed of 60 per minute.

The weighing machine units include those that will weigh gross, that is, including the weight of the container with the weight of the goods; others that weigh the material net. This is accomplished by weighing first in calibrated and balanced receivers, after which the material is poured into the waiting containers. Net weight weighers are particularly desirable where the material handled is of an expensive nature and extreme accuracies desirable. The savings in wastage alone with this type of machine often pays the cost of the machine in a short time.

Practically every labeling need can now be met with machinery of standard construction. This includes loose labeling machines, which apply the label loosely around the can, just applying the glue at the seam of the label or a rim of glue around the top and bottom of the label. Types of loose labeling machines are manufactured for labeling either round or rectangular cans. Then, there is the shrink-tight labeler, which is necessary for use when cans with high outstanding beads are to be labeled, these similar to the standard baking powder cans, or where the covers of the cans are of larger diameter than the bodies. Loose labels cannot be used with this type of can, for the reason that the high outstanding bead or the larger covers hold the label away from the body of the can, producing unsightly wrinkling, and a label only half attached.

The shrink-tight labeler overcomes this difficulty by passing the label through a bath of tepid water. This allows the label paper to stretch, the stretch in the label paper being about ⅜ in. to the foot. Adhesive is then placed over the entire unprinted surface of the label while it is wet; it is then carefully registered around the can, which is passed along to an automatic dryer. The air in this dryer is heated. A series of revolving shelves move slowly around, so that the label dries gradually, and in so doing, shrinks tightly around the high outstanding bear or the oversized covers, as the case may be, without the slightest wrinkle, and insuring the covers being held tightly to the bodies of the cans, eliminating any possibility of leakage. About one-half hour is required to make the journey around the dryer, after which the can is automatically ejected and is ready for subsequent packing operations.

Practically all types of carton packaging, filling, wrapping or labeling machines are constructed so that they can be adjusted to several different sizes of cartons within reasonable range. Different commodities can be handled on the same machine where the characters of the commodities do not change too radically. This is done by fitting the filling machines with hoppers especially designed to meet the requirements of the different products.

Care should be taken when purchasing machines to choose manufacturers who can assure a reliable service that will maintain the machines in good working condition, and so guard against any break in packaging operations which will curtail output.

Dry Product Filling

By A. J. STERLING

THE ART of dry product filling is fundamentally divided into three distinct classes of machinery or methods: Packing—wherein the quantity is determined by the density in the container; volume—wherein the quantity is determined by measuring the material by means of a definite number of turns of an auger; weighing—wherein the quantity is determined by scales but equipped with force feed into buckets and a settling conveyor.

The construction of machinery to accomplish any of the described methods varies according to the individual manufacturer and his engineering capabilities. Some of these machines are more complicated than others and it is well, therefore, to remember that simplicity of construction and performance is that which stamps fine engineering and longevity of the machine with the least possible amount of expenses for upkeep. It is this simplicity of construction that goes far towards procuring exactness in weights. Too many cams, electrical contacts and unnecessary movements bring about the reverse of exact weights and the need of too many mechanics.

All dry materials can be divided into two general classifications—free flowing and non-free flowing materials. In a way, the names of these two divisions are self descriptive, but there are many kinds of materials which apparently are free flowing but as a matter of fact can not be so classed. Practically all free flowing materials can be weighed, whereas the usual method of measuring non-free flowing materials is either by volume or by packing. Each one of these general classifications has many divisions and, as

might be expected, the dividing line between the divisions with some kinds of materials is very finely drawn. There are many materials which at times come so nearly meeting the description of either classification that it is difficult to tell which classification they belong to.

Referring to the free flowing materials, we find the range from very coarse materials that have no tendency to stick or arch down through to the so-called free flowing materials which need some assistance in the form of agitation or pressure to make them flow freely into buckets. Of course the type of machine will depend somewhat upon the character of the material, but in general all of these types of materials can be automatically weighed. Practically all types of automatic weighing machines work on the principle of weighed load shutting off the flow of material into the weighing bucket. This means that there must always be a certain amount of material between the load in the bucket and the cut off point, and the accuracy of weighing is dependent on the uniformity of the flow of this stream of material and the quickness with which the mechanism operates to cut off the flow from the action of the descending bucket.

The problem of handling non-free flowing materials is more complicated as the differences in the character of the materials are more marked than in free flowing materials and the characteristics of the non-free flowing materials cause more difficulty in handling it.

THERE ARE TWO METHODS of filling non-free flowing materials: first, by packing, and second, by volume filling. In certain cases the material is required to be put into containers with greater density than the normal condition of the material would permit, and in such instances the material is *packed* into containers. The amount which goes into the container is determined by the density of the material in the container, and when the required density has been obtained the feeding mechanism is tripped so that the flow of material is stopped.

When the amount of material required in the container is not greater than that which can be held with the material in the normal condition or with a small amount of settling, the method of volume filling is used. This is really a measuring method and when the proper amount has been measured out the mechanism is stopped. One of the great advantages of handling materials by the packing method is that in a material where the consistency is constantly changing the variation in volume will be automatically taken care of because the amount of material is based on the density of the pack rather than on the amount of material in a certain volume. The volume method of filling is sufficiently accurate for materials where the consistency is reasonably uniform.

There are some kinds of material which have some characteristics of free flowing and other characteristics of non-free flowing materials, and in handling these kinds a combination of net weighing with volume filling is employed. It is hard to lay down definite rules for classification of materials because there are so many varying elements entering into the determination, and the selection of the proper equipment to handle different kinds of dry material can only be made after a broad experience in this field.

Therefore it is well when endeavoring to choose a machine suited for the particular work at hand to study the problem thoroughly and to submit it to some manufacturer well known for their accuracy and for the work that they have done in similar fields. That which may have been accomplished in what appeared to be the same as your particular problem, may be accomplished in the same manner and yet may require entirely different treatment.

Bottle Filling Equipment

By E. E. Finch

THE TERM "bottling equipment" is of comparatively recent origin. Twenty-five years ago, with the exception of large breweries and a few soft drink establishments where automatic filling and closing machines were used, complete bottling equipment was unknown. At that time very few liquid products were sold in bottles. There are two very distinct lines of bottling endeavor, one for the handling of carbonated beverages, the other for the bottling of what is commonly known as "still" liquids.

The development of filling machines for "still" liquids may be divided into three decades and three stages and generally can be referred to as three systems or methods of filling. These may be classified as filling by the syphon method, by the direct pressure method and by the vacuum method. The equipment may be referred to as the very simple hand-operated machine, then later with the semi-automatic machine and finally with the large full automatic machine. The syphon type, hand-operated machine was in use from 1900 to about 1910. The pressure type machines from 1910 to near 1920 and the vacuum machines from 1918 to the present. During the first decade there was a very limited sale of bottled goods and, therefore, no demand for other than simple machines.

In 1900 there were available two types of syphon filling machines, rather limited as to use and production. They were known as the Edson syphon filler

and the Kiefer Perfection syphon filler. Both were six stem machines and were designed for filling bottles from half-pints to quarts.

The syphon method, briefly, makes use of a supply tank with a float valve, the liquid coming from a storage tank into this supply tank and when it reaches a certain level the liquid is shut off automatically by the float that operates the inlet valve. Connected to this tank are the filling stems. Bottles are placed on the filling stems and the syphon is established by different methods, either by suction through the stem or by air forced into the supply tank, and the flow continues into the bottle until the liquid level in the bottles is on a level with the liquid level in the tank.

An adjustable bottle table takes care of the various heights and sizes of bottles, and a very accurate fill is obtained. The method, while slow, was eminently satisfactory for the requirements of that day.

The first development of what might be called a bottling unit or complete bottling equipment occurred about 1910. Just prior to that the states of Georgia and Alabama went prohibition and mail order liquor houses came into existence. Both the mail order liquor houses and distilleries immediately found it necessary to bottle liquor more rapidly and more economically than they ever had in the past and thus was developed bottling equipment consisting of bottle washing machines, filling machines, corkers, labeling machines, belt conveyors, etc. This business continued to grow until about 1915 and during that time larger and better filling machines were developed.

The syphon method of filling was improved by larger semi-automatic and some automatic rotary machines. About 1910, or the beginning of the second decade, there came into existence the straight line direct pressure filler. This latter type of filling machine was made as a straight line machine, six stems to the line and filled six bottles at a time. The liquid came from a supply tank above the machine directly through the filling head and stems into the bottles. The head of the filling machine was lowered, the stems entering the bottle, with a rubber seal resting on the mouth of the bottle making it air tight.

The stem was a double unit with an overflow or air outlet tube and a filling tube. As the liquid entered the bottle the air escaped through this overflow and when the liquid had reached the air outlet, it was filled to the desired height. If the head was allowed to remain down the liquid continued to overflow through this overflow tube, the various stems connecting to a manifold and the overflow running off into a container at the side of the machine or into a pump, which returned the product to the supply tank. This type of machine was efficient, made in various sizes and was a decided step forward from a production point of view over the old simple syphon machines. Up to 40 and 45 bottles a minute were obtained by this type of machine, and they are still used, having been found to operate efficiently when used in filling strong, sturdy bottles.

The direct pressure is perhaps the simplest method of filling but it has certain objections. If a bottle is chipped or cracked around the mouth or is imperfect in any way the liquid continues to flow into the bottle and through the bottle on to the machine or on the floor. If a piece of the bottle breaks in filling hot products, as sometimes occurs, the liquid flows through that aperture until the filling head is raised.

There were also developed some automatic rotary machines of the direct pressure type that were highly efficient and quite wonderful when considered from a viewpoint of the day. Some of these machines are still in operation.

Along about 1914 with the increase in the merchandising of small packages there arose a necessity for a filling machine to fill not only bottles but also glass jars and tin cans of various types. There were products of a viscous nature that could not be handled by a syphon method or even by the direct pressure method. As the demand increased for a machine to handle viscous products such as jams, jellies, preserves, mustard, syrups, ointments, paints, varnishes, etc., there were developed measuring types of machines and these were of two general types and known as the rotary gear type and the piston type.

In the rotary gear type a special spiral gear pump was invented that in operation on the filling machine measured an exact quantity into the container, as it was automatically carried around the filling head. Changing of gears changes the speed of the pump according to the quantity desired and the speed at which the machine is operated.

The machine is also equipped with a friction drive for the finer accuracies desired for measuring an exact quantity into a container, and has been developed to a point where it measures to the fraction of an ounce, giving the accuracy desired in filling small as well as large containers. It is today used for filling all viscous and semi-viscous products such as paints, oils, creams, ointments, mustard, etc., although some improvements and developments have been made; and where originally a speed of 40 a minute was considered ample, new machines now operate at a speed of from 90 to 140 containers per minute.

There are two styles of piston type machines. In the first the product flows direct from supply tank to the cylinders of the machine and in the other the product flows into a hopper located directly above the cylinders. In both types the piston is set to deliver a predetermined quantity at each stroke. As the piston is drawn back in the cylinder, the liquid follows or is sucked into the cylinder and then on the reverse stroke is forced out of the cylinder through filling nozzles into the container. These machines are made in various sizes with production possibilities of from 15 to 100 containers per minute.

While the increase in the distribution of liquid prod-

ucts in bottles was considerable from 1910 to 1918 the tremendous development really began about 1918, and with the exception of the slight slump in 1921 and part of 1922 has continued to grow to a surprising degree. Where a factory had a production of one hundred gross of bottles a day in 1918, which was considered something out of the ordinary, today hundreds of factories do as much and a great number of factories each produce several hundred gross per day.

Naturally with this tremendous increase in bottled goods of all sorts there developed an increase in sizes and types of bottles. Peculiarly shaped bottles, very small bottles were, and to some extent still are, difficult to manufacture with a guarantee to perfection. Attempting to fill such bottles at a high rate of speed and a percentage imperfect meant tremendous loss in production as well as in the product itself and the extra labor entailed.

The old type of pressure machine would not do and thus there came into existence the vacuum type of filling machine. Originally this was a simple device, a hand arrangement that filled one, possibly two bottles at a time.

It was at once obvious that in the filling of small bottles such as those for perfumes, extracts, and similar products where the percentage of bottle imperfection was very large, the vacuum method of filling eliminated entirely the loss of liquid because it would not fill an imperfect bottle. Machinery manufacturers were not slow to see these advantages and various types of machines have been developed.

Today there is still the simple single stem and double stem hand vacuum filler, the small semi-automatic straight line machines, the tray type machines, the large automatic rotary type machines and the automatic straight line machines.

In the direct pressure machine the supply tank was above the filling machine and the product flowed by gravity from this tank through the head and thence through the stems of the machines into the bottles. As the liquid flowed in, it forced the air out ahead of the liquid.

In the vacuum machine the product comes from the manufacturer's supply tank into a small supply tank on the filling machine, located below the filling head or stems. The vacuum produced in the bottle first draws the air out and thus the vacuum established in the bottle draws the liquid from the small supply tank.

The vacuum machine is extremely simple in its method of operation. The stems are connected by such methods as the various manufacturers of these machines may employ to the small supply tank on the machine. The stem is really a multiple stem, having two openings. Located on the stem is a rubber seal which may be adjustable, and the lower end of the stem enters the bottle to the height at which it is to be filled. At that point the mouth of the bottle is resting firmly against the rubber seal on the stem. Immediately the mouth of the bottle comes in firm contact with the rubber seal the vacuum, which is produced by either individual vacuum pumps or a general vacuum system in the plant, draws the air out of the bottles through the smaller of the two openings in the stems. When that occurs the liquid naturally follows through the other opening or filling line, fills the bottle up to the air outlet and if the bottle remains in contact with the seal the excess liquid overflows through the air or vacuum line into a vacuum bowl and by means of an ingenious device is automatically returned to the supply tank on the machine. If all connections are tight, if both the air line and the filling line are clean and free then all perfect bottles will be filled.

The methods of handling the bottles to and from the machines are varied. On some straight line machines the bottles are brought in under the filling stems, the head of the machine is lowered, stems entering the bottles, and the rubber seals on the stems are firmly compressed against the mouths of the bottles. In some other types of machines the bottles are raised, the filling head remaining stationary.

In automatic rotary type machines, bottles are fed automatically from a conveyor into the filling machine. Each bottle is handled on a separate lifting tray, and after being filled is automatically discharged from the machine on to a conveyor.

On straight line automatic machines the bottles are carried forward on a conveyor and automatically transferred from the conveyor to a platform which raises the bottles up to the filling head. After being filled the bottles are again automatically placed back on the conveyor. Only partial vacuum is necessary to fill bottles. In handling heavy products at high speed, vacuum up to 18 in. to 20 in. may be used, but the average liquid filled in the average bottle requires only from 3 in. to 7 in. of vacuum. To give a more specific illustration, on some of the larger automatic rotary machines filling a product such as catsup at a speed of 100 pint bottles per minute requires not more than 8 in. of vacuum.

The advantages of the vacuum method of filling are so varied and so great that this type of machine has almost entirely superseded the older types such as syphon and pressure machines.

The accurate measure type in which the liquid is first measured in measuring cups and then dispensed into the container, is especially well adapted to the filling of products that are of an expensive nature such as essential oils, etc., where an accuracy of quantity is more desirable than a uniform filling height in all of the containers filled.

The machinery manufacturers have developed various machines that will suit the requirements of almost every bottler. The machines range from the smallest or hand-operated units with a capacity of 10 to 20 bottles per minute, up to 30 to 50 a minute with a semi-automatic, and from 75 to 150 with full automatic machines.

Transportation of Packages

By J. D. MALCOLMSON

Corrugated and Fibre Containers

A FIBRE SHIPPING CONTAINER is a tough, efficient and economical outer package built to withstand the wear and tear of freight, express and parcel post shipment. It is used for shipping all manner of commodities up to a weight limit of ninety pounds. There are two types of these boxes, both equally popular—the laminated walled "solid fibre" box and the cellular "double faced corrugated" box.

The fibre container is an evolution, partly of the ordinary paper carton, and partly of the familiar corrugated straw sheet, used, among other things, as a wrapper for bottles and incandescent lamps. Corrugated paper itself has been in use for some fifty years as an interior packing and wrapping material. More recently, one face and then two were glued to this corrugated sheet to make a rigid board; but it was not until 1903 that experimental freight shipments were made in boxes built from this combined material. Litigation with the wooden box interests ensued and resulted in a victory for the new package. In 1906 the general use of fibre containers for freight shipments was authorized by the railroads, and this marked the real start of the industry.

Economically considered, the fibre box is an important factor in forest conservation, inasmuch as only about one-sixth of its raw material is new wood pulp, the balance being largely reworked waste paper. This waste paper, moreover, usually contains a fair proportion of old fibre boxes which have outlived their period of usefulness and have found their way back to the paper mill. These savings are in addition to the billions of feet of lumber for wooden boxes that are replaced.

The average fibre box weighs only from two to three pounds, which means a reduction of shipping weight anywhere from 10 to 50 per cent when compared with the same size wooden boxes. It is shipped flat when empty, and in this form occupies about one-tenth of the space it will contain when set up.

The fibre container affords a very satisfactory means for shipping fragile articles, as well as heavy commodities of relatively small size. Liquids in glass, for instance, are moved in these boxes with a minimum of breakage. The bottles are usually packed in cells formed by partitions of corrugated fibre board. Another method of packing which is in great demand is the "unit carton" system. Articles such as electric irons, lamp fixtures, etc., are placed in an individual carton, which also contains the necessary accessories. A certain number of these cartons, say two dozen, are then shipped in a container, so designed that the contents exactly fill the box. The advantages of this system are that breakage is practically eliminated, the goods are received by the retailer in an attractive condition for displaying on his shelves, and the customer receives the article with its accessory fittings in a convenient and expeditious manner. Many of the larger box makers maintain elaborate designing departments, which are devoted to the devising of new and better methods of packing. The service is usually offered to shippers without charge.

The advantages which are claimed for the use of fibre containers are as follows:

First Cost—Being largely made from waste products in large quantities, their first cost is relatively low.

Weight—Tare weights are relatively low, resulting in freight savings on shipments as well as on incoming supplies of boxes.

Convenience—The absence of nails and splinters prevents injury to hands or clothing in packing and invites freight handlers to lay aside their hooks. Its relatively small size, which is controlled by railroad requirements, makes for easy handling in shipment and storage. It is often used as a shelf package and as a "unit package" for delivery to the ultimate consumer without opening and re-packing.

Storage—Fibre containers are delivered flat and are stored in a minimum of space. Approximately ten of these flat cases can be stored in the space occupied by one of them when set up.

Concealed Theft is minimized, as the case, when properly sealed, must be practically destroyed to open it.

Sealing is very economical due to the development of automatic sealing machines which are described elsewhere in this volume.

Advertising—Being a paper product, these cases are susceptible to high grade printing in one or more colors and form a traveling billboard as long as they are in existence.

Sanitary Features—These cases are used new and seldom re-used. Paper linings are not necessary and dust and dirt find no access.

Accuracy—Shrinkage, warping and swelling are unknown.

Conservation—Timberlands are conserved as only a small proportion of the box consists of new wood pulp. The balance of the material includes discarded boxes re-worked into new paper.

Stacking—These boxes, due to the combination of

light weight and rigid walls, can be stacked to the roof of most warehouses.

Nomenclature

MUCH TIME and correspondence is wasted through different ideas of terminology. This is in part due to the rapid growth of this industry which has not had time to evolve a standardized vocabulary.

The following list is by no means complete but it does contain most of the terms which are subject to misinterpretation:

Fibre Containers—The general term which includes both corrugated and solid fibre cases. The words "fibre" or "fibre boxes" are often used to designate solid fibre containers, but this is open to misconstruction.

Corrugated Fibre Containers, or usually simply "corrugated cases," generally indicates boxes made of single strength, double faced corrugated board.

Corrugated Board is a general term and may mean any of the grades named below.

Unlined Corrugated is the corrugated paper alone with no "liners" or "facings." It is usually made of 0.009 in. straw but sometimes is 0.009 in. chip and unless otherwise specified, is the usual or large corrugation, 3/16 in. in height. It is used as wrapping material for lamp chimneys, etc., and has the disadvantage of stretching and thus losing the cushion value of the corrugations. It usually comes in rolls.

Single Faced Board has one liner which may be of straw, chip or jute and usually either 0.009 in., 0.012 in. or 0.016 in. thick. It is used for inner packing and wrapping and is usually sold in rolls 36 in. wide, 250 ft. long weighing from 60 to 75 lbs.

Double Faced Board or double lined corrugated, is made with two liners of straw, chip, jute or kraft and is described by the railroads as "single strength." It may be test or non-test board and cannot be rolled.

Double Strength Board is often spoken of as "double double" and "double walled," but the term "double strength" is preferable, as this is the designation used by the railroads. It is a combination of double face and single face, having three liners and two corrugations and is from 3/8 in. to 1/2 in. thick.

Straw Paper or "Strawboard," used for the corrugations, is 100% wheat straw, although rye, oat and rice straw is occasionally used. Strawboard is sometimes imported from Europe, usually from Holland. It is generally made 0.009 in. thick for corrugating, although 0.012 in. or heavier is sometimes used for this purpose. Chestnut waste, sulfate, sulfite and pine wood fibreboard is also permitted by the railroads for corrugations, but the production of these materials is relatively small.

Chip, or Chip Board is made from mixed waste papers and is usually 0.009 in., 0.012 in. or 0.016 in. thick. The 0.009 grade is sometimes spoken of as "rag." Corrugated board with chip liners is usually used for interior packing. Chip is also used for the inner plies of solid fibre.

News, or news board, is made of newspapers and is sometimes used in place of chip, though more expensive. The other grades of box board do not enter, to any great extent, in the making of shipping containers.

Liners are the facings of single face, double face or double strength corrugated board. They may be 0.009 in., 0.012 in. or 0.016 in. chip or 0.016 in., 0.018 in., 0.023 in. or 0.030 in. jute or kraft. Solid fibre liners are usually 0.016 in. jute or kraft. "Liner" is also used to describe the interior packing sheet which lines the four sides of a case and which is usually made of double faced chip or straw corrugated board. This liner is usually made in one piece with three vertical creases but unjoined.

Jute is really a misnomer, as jute is no longer used in this industry. A "jute" liner is a mixture of new kraft or sulphate fibres and high grade mixed papers.

All-Kraft Liners—These contain no mixed papers but are usually made entirely of sulphate. They are a new development in the industry.

Solid Fibre is a laminated board built by gluing several plies of board together with silicate of soda and is often referred to as "fibre" or "fibreboard." (See *Fibre Containers.*) The two outer plies are made of jute or kraft. Solid fibre is usually made in 0.060 in., 0.080 in. and 0.100 in. thicknesses as called for in the Classification, but some 0.090 in. and 0.120 in. board is occasionally used for shipping containers.

Single-Lined Solid Fibre—This is not often used for shipping containers but is applicable where only a single bender is required and permitted.

Test and Non-Test Board—In this industry, this usually applies to board that does or does not comply with the railroad requirements regarding bursting strength.

Express Stock—The correct name of this corrugated board is *jute and chip* which describes its construction. At one time this was acceptable for express shipments. The express rules are now essentially the same as the freight rules except that for most items of less than 35 lbs., jute and chip may still be used.

Mullen or Cady Test—These two instruments register the bursting strength of a board, presumably in terms of pounds per square inch. Actually the results are not exactly in these proportions and for this reason many people refer to the figures as Mullen "points" or "units." Both of these instruments are official as shown in Rule 41.

Webb Tester—This instrument overcomes many of the objections to the Mullen and Cady test by testing the liners of double face corrugated board separately, but it is not recognized as official by the railroads.

Rule 41 is that part of Official Classification No. 6 which itemizes the specifications for corrugated and fibre shipping containers when used for freight shipments.

Rule 18—This does the same for express shipments and is a part of the Official Express Classification.

The Bureau of Explosives, 30 Vesey Street, New York City, issues a hand book containing additional express and freight container specifications for dangerous articles.

Food Administration Specifications—These are the same as the so-called *National Canners Association Specification* and specify higher test corrugated and solid fibre cases for canned goods than are required by the railroads. They are therefore unofficial.

Certificate of Box Maker—This is sometimes known as the "Imprint."

The following list is not complete but covers the most important styles of boxes:

Regular Slotted Carton (RSC)—Most containers, especially for freight shipments are made in this style because of the economy of using a straight cut blank. All flaps are the same length and the inner flaps do not meet unless the length and width are the same.

Special Slotted Carton—All Flaps Meet.—Also called "Center Special Slotted Carton." This is more expensive as inner and outer flaps are of different lengths, necessitating an extra manufacturing operation with a loss of stock.

Full Overlap Slotted Carton—Also known as "Full Flap S. C." The length of the outer flaps is the same as the width of the box. The inner flaps may meet, gap or overlap. This style is usually desirable on a long narrow box and gives added strength to any shaped container.

One-Piece Folder—This has flaps at top only and is used to pack flat material such as advertising cut-outs for shipment by parcel post or express.

There are a great many other styles of corrugated and solid fibre shipping containers which are illustrated and described in a free handbook issued by the Paperboard Industries Association, 608 S. Dearborn St., Chicago, Illinois.

Bliss Container—This is a patented three-piece shipping container (two ends and a body sheet) that can be made of solid fibre, corrugated or a combination of both. In the No. 2 box, the flanges on the end sheets are stitched to the body sheet, while in the No. 4 box these flanges are part of the body sheet. The No. 4 style is also known as the *Van Camp* box.

Cracker Caddy—This is a special container. Usually about 10 in. x 10 in. x 11 in., made of a moisture- and greaseproof board combination. It is occasionally referred to as "can" or a "qu."

Silicate of Soda—This is an adhesive sometimes used for sealing containers and always used in the manufacture of corrugated and solid fibre board. Another name is *water glass* and it is generally referred to as simply "silicate."

Point—In this industry a "point" is one thousandth of an inch. 0.060 in. board is spoken of as "sixty point" board.

Height—Depth—These synonymous words indicate the distance between the openings of a box, i. e., from top to bottom. "Height" is preferable as in some industries "depth" means from front to rear. The height of a slotted carton is always the last dimension.

Girth is used in the parcel post specifications and means the distance around the parcel at its thickest part.

Length in these P. O. specifications is the greatest distance in a straight line between two ends.

Nests, or partitions, are slotted half way so that they interlock. A *divider* is simply a vertical pad with no slots.

Star Cut Pad—This corrugated pad has radiating die cuts and is used to separate large glass objects, such as bowls and illuminating glassware. It is also known by such descriptive and imaginative terms as "rat trap pad" and "pie cut pad."

Die Cut Work is made on a special press and the initial cost of the die and extra make-ready must be allowed for. The ordinary fibre box equipment works in straight lines, at right angles, so that other unusual work must be made on a separate cutting and creasing press.

Crease and Score are used interchangeably but "crease" is preferable as "score" may mean a knife cut, as it does in the set-up box industry. Such a cut score is not used in the fibre container industry.

Joint and Seam—The railroads define "joint" as the result of the operation done by the box maker in taping or stitching the fourth corner of the box; and "seam" as the juncture that is closed by tape in the sealing process.

Bales and Bundles—This refers to Section 4 (*b*) of Rule 41 and means that items accepted under this category may be shipped in corrugated or solid fibre containers *without* restrictions as to weight or dimensions.

Printing Plates—Solid fibre is printed from brass plates or electrotypes. Corrugated board is printed from rubber plates which are cast from type or from a wood cut.

Rules and Regulations Governing the Use of Fibre Containers in Transportation

IT IS ESSENTIAL that shippers as well as box makers be familiar with the regulations. They are too voluminous to remember but one should at least know where to secure the authoritative data. Below is given a summary of the various regulations.

The more or less voluminous regulations covering shipments in corrugated and solid fibre boxes can be grouped as follows:

1—Freight
2—Express
3—Parcel Post

4—Dangerous Articles
5—Export
6—Army and Navy

Many of the details in these rules apply only to the way in which the box must be made, and are not of particular interest to the shipper. Buried in the mass of material, however, are a lot of little jokers that are highly important to him, but it sometimes takes a minute study to uncover them.

Freight—The "Bible" under this heading is the Consolidated Freight Classification No. 6, issued May 1, 1930, effective June 15, 1930—a formidable volume of 550 closely printed pages. This is issued in two sizes—one about the dimensions of a telephone directory and the "photo-reduction edition" about 5 in. x 7 in. x 1 in. You can get either size for a nominal sum by writing to the Official Classification Committee, 143 Liberty St., New York City, the Southern Classification Committee in Atlanta or the Western Classification Committee in Chicago. The subscription includes the various supplements which are issued from time to time—also in photo-reduced form if desired. You should look over each supplement and make the necessary corrections in the large volume. A point to bear in mind is that most of the supplements consist of "re-issues" and where this word occurs it means that the change has already appeared in a previous supplement so you can skip these lines, if you have kept things up-to-date in the past.

The well-known "Rule 41" of the Classification gives all the rules for manufacturing and sealing corrugated and solid fibre containers and the book also lists all commodities, telling you how each may be packed. Thus, "In Boxes" means corrugated and solid fibre as well as wooden. "Bales" or "bundles" means oversize boxes with no weight nor dimensions limits, provided the case is roped or steel strapped. "Packages" is an undefined term occasionally encountered and is similar to "bales" and "bundles" except that the use of straps is not compulsory; and one item permits the use of 0.060 fibre "cartons" without dimension or weight limit. Some shippers like to strap several small fibre containers together to make a single unit. There is no rule against this but each individual box must conform to the requirements of Rule 41. "Wrapped in Fibreboard" is another definition applied chiefly to special forms of packing for furniture.

The commodity list is very complete but some ingenuity is often required to locate your particular item—this in spite of a good cross index. For instance, cylinder blocks, baby carriage bodies and wheel-barrows all come under "Vehicle Parts." Wearing apparel comes under Clothing, but if the goods have not yet been manufactured into wearing apparel, they are listed as Dry Goods, which also includes cotton piece goods, blankets, etc. The committee members, however, are very good about helping you out if you give them a ring or drop them a line.

Shippers are constantly applying for changes in the rules. Such applications are listed from time to time in a published docket and hearings are later held at the three cities mentioned, to pass on these applications. Very conclusive evidence must usually be presented to effect a change, and "shipping history" plays a large part in this evidence.

Express—These regulations are governed by the Official Express Classification No. 31 issued in February, 1930. This is a small 60-page pamphlet with two supplements to date. Only two supplements are in effect at any one time. Rule 18 describes fibre containers and is modeled very closely after the freight Rule 41, the principal difference being that the regular dimension limit is raised from 70 in. to 90 in. and the specifications for packages under 35 lbs. are much less severe than for freight.

Parcel Post—The post office rules are not as definite as those for express and freight. Form No. 3841 recommends the use of corrugated boxes for a number of listed commodities but specifications other than "securely wrapped" are not given. The usual parcel post weight and dimension limits apply. In case of doubt it is always best to submit the complete package to your local postmaster for approval.

Dangerous Articles—These come under the jurisdiction of the Bureau of Explosives, 30 Vesey St., New York City, and include such items as inflammable liquids, "strike anywhere" matches, fireworks, etc. The regulations are covered by a 380-page "Pamphlet No. 9" dated September, 1930, and by numerous later supplements. An important thing to remember is that the freight and express classifications list and rate dangerous articles, without any intimation that they require special packing. In case of doubt, it is therefore wise to study the Bureau of Explosives rules first, as the method of packing such articles is considerably more expensive than indicated by the ordinary freight and express rules.

In this classification, an "inflammable liquid" is one with a flash point at or below 80 deg. F. An immense amount of correspondence back and forth would be avoided if shippers of doubtful liquids would always mention the flash point of their product when making inquiries for shipping containers.

Forbidden Articles—A number of articles are forbidden for all of these transportation methods. These include certain explosives, chemicals and products susceptible to spontaneous combustion.

Export—There are no uniform rules for fibre containers for overseas shipments. Each steamship line makes its own rules and the stringency of these depends somewhat on the intensity of competition at the time the rules are made. The Paperboard Industries Association has done much valuable work in keeping these regulations within reasonable bounds and hopes eventually to help standardize them.

Army and Navy—During the War, the U. S. Army

adopted certain specifications for fibre containers to be used in making shipments, particularly of canned goods, to training camps. This was done under the auspices of the Food Administration. At present the Navy has in effect Bulletin No. 65 C 12, effective February 1, 1926, and revised September 1, 1926. This is modeled after Rule 41 and a copy can be secured from the Supply Officer of any of the navy yards.

Conclusion—This set of regulations makes a formidable array but a great deal has already been accomplished in the direction of uniformity. It is to be hoped that this standardization will be kept in mind by the powers that be, when they make future changes or additions.

Patented Types of Fibre Containers

THE PASSING of the years has seen an almost endless number of unusual boxes, patented, advertised and finally forgotten. Most of these are either impracticable or too expensive for the purpose intended. Those in the limelight at the present time are:

The Reinforced Score Box—A corrugated container with a strip of tape glued over the score-line, either on the inner liner or inside the board. Three different companies have patents on variations of this idea.

The Reinforced Tape Joint, in which the ends of the tape on the manufacturer's joint is split and tucked under at each end.

Burlap-Covered Box—This is a corrugated box with an outer covering of burlap cemented on with asphalt. This box, because of its strength and moisture-proof qualities, is suitable for export use.

Recessed End Box—The ends of this solid fibre box, being recessed, are strengthened by the resulting stitched rim.

Bliss Box

A FIBRE CONTAINER designed by the H. R. Bliss Co., Niagara Falls, N. Y. This is a three-piece box made of fibre board—so constructed that the corners are doubly reinforced, which the designers claim are the vital points where resistance against shocks are so needed. It is pointed out that in transit the most severe blows occur at the corners due to the dropping and jolts of the case. To add to its strength at the corners, the double thickness of fibre board is securely wire stitched. This offers rigid support which prevents buckling.

Particular attention is paid to the grain of the board which runs in vertical direction on the side; and on the ends, it runs in the direction best suited to the packing conditions. It is claimed that this combination of grains adds strength and lessens the chance of tearing the end seams in handling. The boxes are closed by wire stitching or can be sealed by an adhesive.

It is stated by the designers that this construction of the box reduces the amount of board used by an average of 10 per cent. The lighter box thus reduces the freight charges. At the same time a strong box is afforded. The containers are well suited for export shipment and bulk goods, the manufacturers state. They are made in any style to fit the particular specifications that the shipper needs.

Machinery has been designed to handle these boxes in both the setting up and sealing operations. This is also supplied by the H. R. Bliss Co.

Sealing

IMPROPER SEALING will spoil the best fibre container made, yet an inspection of any freight terminal will show that there are still many of these instances despite the number of words that have been written on this subject. One reason for this condition is that so much still depends upon the human element, especially in the packing rooms of new users and small shippers. In the larger plants, mechanical sealing, which is so rapidly increasing, is doing a great deal to insure correct and efficient closures. The secret of proper sealing is to bring the flaps into contact with each other. Notice the opened flaps of any corrugated or fibre container. The unadhered portions usually have a smooth, glassy appearance, which proves that the adhesive has dried without being in contact with the other flap. Yet a little attention to this point will greatly increase the area in contact. In a series of drum tests of canned goods recently made, less than one per cent of 1300 boxes tested failed through opening of the flaps. This shows what careful attention to this operation can accomplish.

Fibre containers are closed by these principal methods:

Adhesives	Stitches or Rivets
Gummed Tape	Steel Strapping
	Rope or Twine

Sealing methods can be divided into three groups, hand, mechanical and automatic.

Hand sealing requires no initial investment but, except for very small production, is expensive and nearly always inefficient. The flaps at one end can be held together with the weight of the contents and the top flaps pressed together by some sort of a heavy weight. A better plan, however, is to have the carpenter rig up a simple stand consisting of a hinged platform over which to slip the box and some sort of cam and lever arrangement with which to apply pressure to the glued flaps.

For greater production, semi-automatic sealing machines are obtainable. Most of these styles are characterized by two endless belts top and bottom, motor driven, which draw the box through the machine. The compression is gained by coiled springs behind each roller. The operation is intermittent, allowing

the boxes to remain under compression as long as possible. Lateral pressure is applied as the box enters the press, insuring the close abutting flaps which are so necessary to a well-sealed container. One man seals both ends of the container in one operation.

This labor saving is quite apparent when compared to hand sealing of bottoms and tops separately. Excessive handling is eliminated because the containers move away from the packing end of the machine. Roller conveyors can take the sealed containers direct to the freight car or warehouse, as shown in the accompanying illustrations. These machines have varying capacities, depending on the length of container, size of sealing press and nature of contents.

THE MODERN full automatic sealing press has been so perfected that it will seal from 50 to 1500 cases an hour, depending on conditions. One of the large soup canners is regularly putting 1500 heavy cases an hour through this machine and a glass company has even reached a figure of 1800 per hour, although these are light weight cases carrying empty glass bottles and jars.

The cases are packed with the bottom flaps simply folded into place. They then roll on a gravity conveyor to the front end of the automatic machine where they are permitted to enter one at a time by a positive timing device. The top and bottom outer flaps are then automatically folded out and coated with a thin even film of adhesive, after which they go back into place without disturbing the contents. They then traverse a compression unit similar to those already described. An ingenious attachment causes the adhesive to be applied only where the inner flaps will come into contact, thus insuring that none of it will touch the contents.

Many "tricks of the trade" have been evolved by practice but have not found their way into print. For instance, double strength corrugated boxes can be sealed efficiently if the corners of the outer flaps are folded or broken down slightly before sealing. This allows the corners to come into contact when under pressure. Otherwise double strength board is hard to seal efficiently as the corners do not stick and are liable to be hooked loose in later handling.

Hand sealing is less awkward if one outer flap is held down at an angle of about 45 degrees, which keeps the inner flaps flat and in position to receive the adhesive brush. Use a large brush, say 4 in. Hand sealers in one plant were observed using a small brush and taking from 10 to 12 strokes to apply the adhesive to one end. Instruction and a larger brush reduced this to two strokes—a small matter perhaps, but quite a saving in time in a year.

Warping often causes trouble in sealing due to loss of contact. Containers should not stand around longer than necessary before packing and sealing because atmospheric conditions may warp the flaps. They should be left in the original bundles until ready to use, or at any rate, kept in large storage stacks.

The hardest box to seal is one whose contents do not fill the box and there is nothing to "seal against." Sometimes turning the box upside down lets the contents aid in securing contact of the top flaps.

Stitching

STITCHING THE FLAPS together is an important method of sealing corrugated and solid fibre containers. There are many different types of stitching machines such as those used for making books and set-up boxes. These are usually manufactured by the makers of shipping case stitchers and it is only these latter styles that we are concerned with here.

Stitching Methods—Possibly 95 per cent of all stitched containers are solid fibre. Corrugated board because of its resilient nature is more amenable to tape or adhesive sealing although a great many stitched corrugated boxes are shipped every year. The usual practice is to stitch the bottom flaps of corrugated or solid fibre containers and to glue the top flaps. Such a box has many advantages. In the first place it is often difficult to glue securely the bottom flaps of an empty container unless one is equipped with a proper bottom sealing press. In such instances the top flaps of the packed box can be easily sealed by applying adhesive to the flaps and then rolling the box over so that the weight of the contents will give the necessary sealing pressure. The empty box with the bottom flaps stitched up forms a convenient tray or container for transferring from one department to the other during the packing operation. In this form it is also used as a "re-shipper" for carload shipments of empty bottles or cans from the glass factory or can maker to the purchaser of these inner containers who then uses the same boxes for his own shipments.

Stitching machines occupy such a small space that they can be placed in advantageous positions near the incoming box.

Storage—Boxes can be bottom stitched only as required, thus saving space. Many large shippers use this system although others, who formerly did, have adopted the automatic adhesive method of sealing top and bottom flaps simultaneously.

Stitching is more nearly "fool proof" than any of the other closing methods as each stitch is a positive joining of the flaps. Female help or inexperienced operators can be used, and no "setting time" is necessary; nor is tape needed.

Stitched cases are generally used where it is necessary to open and re-seal the case in transit. Thus, shoe jobbers often have to change the assortment of sizes before sending the box out to the dealer. In such cases the stitches can be withdrawn by a screw driver and replaced with a top stitcher.

Styles of Boxes Used—Most stitched containers

have an overlap on the outer flaps of one inch or more and this is required if the small flaps are over six inches apart (a one-inch overlap means an extra one-half inch added to the blank and this extra material cost must be taken into account in any consideration of relative sealing costs). If the box is over sixteen inches long it should have a two-inch overlap. One row of stitches down the center of the flaps is required on an overlap box. If no overlap is used, two rows are necessary here.

The large flaps are usually stitched outside but often the small end flaps are out. This latter makes a stronger box for certain commodities such as canned goods where the cutting action of the can chime is most apparent at the ends of the case. Some shippers have the box maker's certificate printed on both large and small flaps so that either can be used as outers. Occasionally the "cross-cross" method is used—one short flap outside and the other inside.

Style of Stitching Machines—There are two main types of stitchers, bottom sealers and top sealers—combination machines are also made which will do both. The bottom sealer, which is the most important, consists of a metal post about 40 in. high which acts as the anvil for clinching the stitch. This post is hinged at the bottom. Stitchers usually occupy about 5 square feet, weigh 500 or 600 pounds and cost about $400 or $500 when motor driven. This motor need only be about ⅙ hp. and operates from the lamp socket. Some types are belt driven. The average stitcher will drive from 200 to 300 stitches a minute and is quickly adjustable to stitch thickness of from 1/32 to ½ in. Small variations in thickness are automatically compensated for. The machine is actuated by a foot treadle and the action includes drawing the wire from the spool, cutting it, forming, driving and clinching the stitch. The stitch is formed on a mandrel and the size of the clinch is adjustable. An experienced operator can bottom stitch from 1500 to 2000 cases a day.

The general form and method of using these machines are as follows: The folded boxes are opened and squared up by the operator. The supporting post is drawn back by the treadle for insertion of the box. Another treadle actuates the stitching which is automatic, allowing all of the operator's attention to be concentrated on the location of the stitch. On some makes, this supporting post swings sidewise so as not to interfere with the operation and the treadle can also be folded up out of the way when not in use. Replacements and adjustments have also been greatly simplified in recent years.

Top stitchers have the same mechanism as bottom stitchers but use a blade anvil in place of the post. This looks like a sword with the flat side up. The end of the box nearest to the operator is first partially stitched. Then the box is reversed and the opposite end completely stitched. The first is then finished up as the blade is withdrawn. This means that the last two stitches cannot be within 2½ in. of each other and the classification, therefore, makes allowance for this condition. The filled box is supported on an adjustable table usually equipped with movable balls for the easy reversing and moving of heavy cases. Stitcher sizes are described by the dimensions of the head. For instance, a 20-in. head type top stitcher will probably stitch boxes up to 16 in. in length and a large 30-in. type will take a box 27 in. long. These are with no overlap. With an overlap, boxes of almost any reasonable length can be stitched.

Combination machines have a removable post, folding blade and swinging work table and are useful where a shipper desires to stitch both tops and bottoms of his fibre containers, but does not have a large enough output to warrant the purchase of two separate machines. They have a capacity of 400 to 500 cases a day.

Stitching Corrugated—The earlier types of stitchers were not very successful on corrugated as they crushed the board too much and the stitches had a tendency to pull out. This type of sealing now gives no trouble due to several improvements, such as pointed stitches inserted at an angle and so clinched that the points are driven into the board without crushing the corrugations. This gives a positive lock and has even been used successfully on double strength board. This burying of the clinch (even on solid fibre) prevents the wire from damaging or rusting the contents. Bottom stitching only is used for corrugated boxes.

Wire—This is usually "copperized" box stay wire calipering from 0.017 inch to 0.020 inch and runs from 1800 to 2100 stitches per pound. Figuring the wire at from 8 to 10 cents a pound the cost for stitching is from $1.00 to $1.50 per thousand boxes. The wire comes on wooden spools and many large shippers use aluminum spools on the machine. The wire is made of iron with copper colored lacquer coating which is not always rust proof. For this reason galvanized or tinned wire is sometimes used. Solid copper has been experimented with but the cost is prohibitive. Wide wire, ribbon shaped, is often used for sealing corrugated boxes and some of these staples have been observed one half an inch wide.

Other Uses—In addition to sealing one-piece boxes, stitchers are used in this industry for making up telescope boxes (including suit boxes), assembling 3-piece containers such as the Bliss and Van Camp styles and for sealing bottoms and making up the covers of the popular moisture-proof cracker caddy. Essentially the same style of machines are also used by the box maker for stitching the "manufacturer's joint."

Metal Strapping

THE APPLICATION of metal strapping to fibre containers is a relatively new development and was

started by a short clause written into the freight Classification within the past few years. The principal uses of metal strapping on fibre containers are:

1. Bundles and bales as defined by the freight classification.
2. Packages composed of several light weight outer containers strapped together.
3. Packages with heavy weight contents where the bursting thrust is excessive.
4. Packages to be safeguarded against pilferage.
5. Odd shaped containers.
6. Export boxes.

There are three principal steel strapping systems applicable to fibre containers. The straps are tightened and sealed by various methods. Omitting the technicalities of these methods as outside the province of this article, it will suffice to say that the ends of the strap are usually clamped together with some sort of separate metal seal. This seal can often be lithographed with the shipper's name or embossed with his package number, thus affording a positive identification and seal. In one make the straps when crossed can be sealed at the intersection in an interlocking combination which prevents side slipping. Some makes have separate tools for applying tension, crimping the seal and cutting the strap. At least one style does all these operations with a single tool. Perhaps the very latest development is the use of spot welding for joining the ends of straps, in place of crimping with a seal.

As regards the strap itself, many experiments have shown ⅜ in.-0.015 metal is best for fibre containers. Straps less than ⅜ in. in width have a tendency to cut through the board and the gain in this matter from using greater widths than ⅜ in. is not commensurate with the increased cost. The straps naturally cannot be applied as tightly as in the case of wooden containers, but should be tightened just sufficiently to bite into the edges, so that they will not slip sideways. This, by the way, is the big disadvantage of cord.

When the contents are of a hard, solid nature, the strap should, of course, be drawn tighter than in the case of loosely fitting or fragile contents, as this serves to tie the contents together in such a way that they will resist a surprising amount of rough handling, even after the container itself has started to break. Where the contents are of a fragile or yielding nature, it is often worth while to slip buffers of corrugated or fibre board under the strap at the edges.

FIBRE CONTAINERS are usually sealed with adhesive or tape, or both, before applying strapping. Strapping alone can be used, however, especially when the outer flaps have plenty of overlap and the contents are solid and firm, such as canned goods. The use of wax seals on valuable contents, such as silverware, can also be dispensed with when straps are used.

The regular slotted carton style is often strapped but it is usually preferable to have the outside flaps made with a 1-in. overlap. This is particularly true if no adhesive is used. Long boxes opening at the ends (such as for automobile bumpers), should have a full overlap. Another popular style is the "full telescope," as the depth can be varied while the straps will still keep the contents from shifting. The three-piece box is also well adapted to strapping. The body of this box consists of an open-end tube and the ends are formed by telescope covers extending two or three inches over the sides. If necessary the depth can be varied by cutting down the body. Two crossed metal straps provide all the sealing needed.

Often several relatively small corrugated or fibre containers are strapped together to make an easily handled shipping unit, to give added protection to fragile contents or to reduce transportation costs. For instance, one of the branches of the General Electric Company receives solid carloads of lamps from the factory and re-ships these in smaller lots. Many of these corrugated boxes weigh from three to six pounds only each.

The minimum weight for express shipments is ten pounds. By strapping several of these boxes together, expressage is paid only on the actual weight shipped. Several sizes of boxes are often strapped together and "lot shipments" arrive at destination intact with no lost sheep "to follow." Because of the light weight, no wooden ends nor fibre buffers are necessary. Two straps, crossed, are used.

Dead weight articles, such as bolts and nuts, are always expensive to pack. When dropped, the box often breaks with explosive force. Metal strapping is a valuable reinforcement in such instances.

Concealed losses due to pilfering run into large sums annually, although marked reductions in these losses have been made during the past few years and much of this reduction is due to the use of sealed metal strapping.

Many objects are difficult to pack because of their odd shape and when packed it is sometimes difficult to seal the container and to deliver it to destination in good condition. In such cases the proper use of steel strapping often solves the problem.

Automobile bumpers are usually shipped in long, narrow, solid fibre containers either end-opening or "five panel wrap" style. Both of these are difficult to seal with the usual methods and for this reason metal strapping is nearly always used to close these packages. When drawn up tight, the straps keep the heavy bumpers from punching through the ends of the package.

The export field has so far been little touched by corrugated and fibre boxes, but it is undoubtedly destined to play a big part in the future of the industry. One of the chief things that has retarded this development has been the attitude held by the steamship lines that the domestic type of these pack-

ages is not sufficiently rugged to withstand overseas shipment. Also the steamship companies lack the uniform classification standards that have been developed by the railroads.

With the increase of competition among ocean carriers, however, definite rules will soon have to be laid down regarding such shipments. Doubtless, these rules will include the use of steel strapping.

Gummed Tape

IF THERE IS one subject on which the public, from box manufacturers and tape mills to shipping clerks and packers, need instruction, it is on how to get proper results from sealing tape. Many mistaken notions are prevalent. The result is that many shippers get better results from sealing tape than from any other form of closure, while there are other concerns whose taped packages are not what they should be.

To make taped fibre shipping cases safe, it is of utmost importance to make the gummed tape stick tightly. To do that the tape must be *correctly moistened*. Unfortunately, this important factor of tape moistening is often neglected in shipping rooms and also by those higher up, who do not realize its value in preventing damage to or loss of goods in transit.

When a strip of sealing tape has been applied to a carton or package, it should stick so tightly that it becomes practically a part of the container itself. Moreover, the tape must stick over its entire surface, not just in spots here and there; as that would seriously weaken the package.

To accomplish this is easier said than done. Devising a machine which will invariably deliver strips of tape moistened just right, and over the entire surface of the tape, has proved to be far more difficult than was at first expected.

Let us consider a moment what a good tape moistening machine must do. During rush hours in shipping rooms, packages and cases are sealed at top speed. Each lineal inch of tape touches the moistening element about one-fortieth of a second of time. The "first time over" must do the job correctly or not at all. The tape is slapped on the carton, rubbed with one or two quick motions—and in that brief instant it must grip tightly enough to hold the container, if necessary, during a trip across the continent. The box will not stand quietly on a shelf for several weeks but will get rough handling. The crushing and scraping in transit frequently pulls nails out of wooden shipping cases, yet tape must not work loose. It must *stay* stuck.

Some shippers do not realize that tape can stick for a few hours and look perfectly secure, and then suddenly give way. This trouble is usually the result of moistening the tape only in spots or it may be caused by overwetting of the tape or not moistening it enough.

The safest plan is to use only thoroughly reliable tape dispensers. The best machines are those which eliminate the human factor from moistening entirely, making the operation of the moistening unit of the machine entirely automatic.

NO MATTER WHAT TYPE of moistening device a shipper may choose, the main thing to remember is the great importance of the moistening operation in making a safe shipping container out of corrugated box or the paper wrapper, as the case may be. The value of the merchandise and ordinary corrugated box runs from $1.00 to $20.00. Moistening the tape can never cost more than a tenth of a cent, but that fraction of a cent can make all the difference between losing the $20.00 merchandise or having it arrive safely and in good condition when it reaches its final destination.

The glue of various brands of gummed tape varies, especially as regards solubility. A little study will show the proper amount of moistening for any one make. Too much water may remove a very soluble glue and lead to blisters, while not enough water may fail to soften a harder glue. Some tapes have such hard glue that complete immersion works best. Only first class moisteners should be used. Heavy kraft paper tape, while strong, is stiff and difficult to adhere properly and thoroughly. A very thin tape is more foolproof but weaker. For these reasons gummed cambric makes a wonderful seal besides being very resistant to tearing and friction. However, it can be easily peeled off by a thief and a fresh piece replaced, so for this reason the railroads have recently forbidden its use in sealing. Well-adhered kraft cannot be removed without tearing.

Springy flaps will cause tape to slip a little before the glue has set, resulting in looseness and wrinkled tape. This can be overcome by first folding the flaps inward or by holding them down hard until the glue has set or can be done mechanically by slipping the freshly sealed box under a home-made adjustable wedge-shaped board or frame which will hold the flaps of one box down until it is pushed on by the next box.

Many packers run the tape 6 in. down the ends of the box or even all around. The Classification calls for 2½ in. and if properly applied this is enough. We recently observed a shipping room putting an average of 6 in. of 3-in. tape down the ends of the box and turning out 200 boxes a day. Reducing this to 2½ in. made a saving of $435 a year. In most cases, where 2-in. tape is indicated under the rules, this width, properly applied, is ample.

Many shippers use tape and adhesive together when the latter is sufficient to meet railroad requirements. From a carrying standpoint adhesive alone is ample but the extra tape may be worth while as an identifying seal or as insurance against inefficient labor. One firm made a saving of $2230 a year by omitting

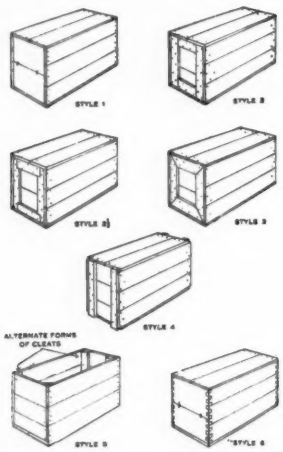
this extra tape which was being used through ignorance of the Classification requirements.

An occasional visit to the shipping room by one experienced in such matters is well worth while, as he can often point out economies and can compare your procedure with the Classification requirements which are often quite complicated. This is especially true in the case of relatively small companies or those who have only recently adopted the fibre container.

Wooden Boxes

THERE ARE seven forms of nailed wooden boxes so universally used that they may be called the standard styles of nailed boxes. These boxes can be adapted to a wide range of uses, and it is the experience of the Forest Products Laboratory that in meeting the majority of packing problems they are the most efficient of the nailed boxes. The advantages and disadvantages of each style, as revealed in laboratory tests and observations of boxes in commercial service, are given below.

In style 1, the grain of the ends and sides runs approximately parallel to the top and bottom surfaces. One of the common failures in this type of box is splitting of the ends and sides, or failure of the joints in these parts, since the only resistance to such failure lies in the strength of the joints, if present, or in the strength of the wood in tension across the grain, which is not large and is extremely variable in any species of wood. The smaller holding power of nails driven into end grain as compared with side grain is another source of weakness.



To improve on style 1 ends, and guard against the liability of complete failure from splitting of ends and sides, rectangular and sometimes triangular corner cleats nailed or stapled to the inside of the end (style 5) are added when the character of the contents permits. This construction does not increase the displacement of the box and is, therefore, not objectionable in that respect. If these cleats can be made large enough, the sides may also be nailed to them, which, of course, increases the strength of the nailing at this point. These inside cleats should be shorter than the inside depth of the box, so that if the sides and ends shrink, the cleats will not cause an opening of the joints. In all boxes with cleated ends, the nails or staples holding the cleats to the ends should be long enough to permit a good clinch, and should be spaced approximately the same as the nails in the adjacent edges of the wooden box.

The most common method of preventing box ends from splitting and of supplementing the holding power of nails driven into the end grain is the addition of two outside cleats on each end as shown in style 4. These cleats should be of the same thickness as the end, so that when setting up the box the same size of nail may be used in them. The nails should be staggered in the ends and cleats; this permits a closer spacing of the nails and results in a stronger joint than is obtained by driving the nails in a single row. The holding power of the nails is supplemented most effectively by the use of denser woods in ends and cleats.

THE CLEATS in style 4 boxes should be long enough to come nearly flush with the outer surfaces of the top and bottom. They will thus aid in keeping the top and bottom in place and will also take some of the thrust which comes on the nails in the top and bottom when the box is dropped on a corner. If the cleats are made to come exactly flush with the outer surfaces of the top and bottom, and shrinkage occurs later, it may cause the ends of the cleats to project beyond the top and bottom, and they may be pulled loose if the box is handled so that they catch on some object. The amount that the cleats should be cut short to allow for shrinkage depends on the moisture content of the lumber at the time the box is constructed and the storage conditions afterward. Usually an allowance of from $\frac{1}{8}$ to $\frac{3}{16}$ in. at each end will be sufficient.

The addition of the two horizontal cleats in styles 2, 2½ and 3 permits a reduction in the thickness of the end boards from the thickness of the cleats to that of the sides, top and bottom, in which case all the nails should be driven into the cleats. Or the cleats and end boards may be the same thickness and the nails staggered in two rows. The usual failures in these styles of boxes are pulling of the nails from ends and cleats, shearing out of the nails to the ends of the sides, top and bottom, and splitting of the end boards along the inner edges of the horizontal cleats, which allows a cleat with part of the end board to pull away with the top or bottom. The resistance to failure by splitting of the end is due to the strength of the end board in tension across the grain, supplemented by the action of the vertical cleats. In nailing or stapling the vertical cleats to the ends in styles 2 and 2½, it is possible to get more nails near the top and bottom edges of the box than in the mitered cleats of style 3. This more effectively prevents the

box end from splitting along the horizontal cleats.

Style 2½ has the advantage that when the bottom and top are being nailed to the cleats, the notches or steps in the vertical cleats will take the thrust that otherwise would come on the nails holding the horizontal cleats. This thrust is sometimes very severe, especially when several nails are driven at the same time into a cleat made of dense wood.

In manufacturing boxes with square ends, style 3 has the advantage that all four cleats are the same length, hence interchangeable. When a very symmetrical end is desired, rather than the strongest end, the mitered cleats are preferred.

The box shown in style 6 has sides and ends joined together by a series of tenons, called "locks," which interlock and are held together by gluing. The top and bottom are usually fastened by nailing. The lock corner, if properly glued, gives a more rigid box than nailed corners, there being no appreciable distortion before failure occurs. Tests show that many failures in lock-corner boxes occur because ends and side split, nails pull from or split the edges of too thin ends, locks open and matched joints lack sufficient strength.

The Plywood Box

PLYWOOD is a combination of two or more thin sheets of lumber glued together, with the grain of one ply at right angles to the adjacent face or faces, and therefore tends to equalize the strength parallel and across the grain. For that reason the thickness of the lumber used in the body of the box may be reduced as much as 75 per cent without any loss whatever in its serviceability.

Lumber does not shrink with the grain, but across the grain. It shrinks about 8 per cent from a green to a dry condition. If dry and subjected to humid conditions it swells. The shrinking or swelling of plywood in length and width, due to the cross banding of the grains, is so minimized that it is of no consequence and the warping and twisting of the plywood panels in boxes is eliminated.

Plywood adds to the complications of manufacture of wood boxes. The sheets of veneer of a predetermined size are cut from logs on very powerful lathes. This veneer is then kiln dried in large kilns which operate continuously night and day. The material is next taken to the gluing-up room, where glue is spread upon the surface by a mechanical spreader. The glued veneer sheets are then placed in a hydraulic press with heavy three-ply oak boards inserted between each of several layers, and a heavy pressure is applied. This pressure holds the panels perfectly flat and is maintained for a period of hours by the use of turnbuckles and I-beams applied while the wood is in the press. After the panels are thoroughly dried, they are trimmed to the desired size and are either nailed by nailing machines or stapled by large staplers driving long metal staples through the veneer into the reinforcing cleats.

Plywood boxes may be made in a great variety of styles. Each box part is marked, indicating whether it be the end, side, top or bottom, and as each box part is complete, there are but six pieces or parts to be nailed together, thus simplifying assembling.

The thicknesses most generally used are $\frac{3}{16}$ in. and ¼ in., these being substituted for lumber up to 1 in. in thickness. It is possible, however, to make plywood in greater thicknesses or more plies than three, where conditions require.

The uses of plywood boxes are infinite. Plywood cases are used for cottons, woolens, prints, worsteds, blankets, yarns, hosiery, underwear, silks, gloves, corsets, shoes, buttons, soap, confectionery, silverware, rubber goods and wherever a wooden box is required. Special cases are made for talking machines, tires, silverware, boots and shoes, hats and other articles.

The Wire Bound Box

THE WIREBOUND BOX is a container made from thin material, usually lumber, bound with two or more strands of steel wire and stapled or nailed to a strong framework of wood. This box, in its knocked-down form, consists of only three separate parts, the box-blank and the two ends; the box-blank, or mat, comprises the consecutive faces, top, side, bottom, side, connected only by the continuous steel binding wires.

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STAPLING WIRE

Acme Silverstitch, the galvanized stapling wire, is made in four thicknesses: .014, .017, .020, and .023.

It is manufactured by an exclusive process which permits greater accuracy in temper, width and thickness than has heretofore been possible in stapling wire. The galvanized finish will resist rust longer than the ordinary copper-wash finish.

Silverstitch is wound in five and ten pound *continuous* length coils. The ten pound coil is widely used because it reduces time spent in changing coils and threading the machine 50%.

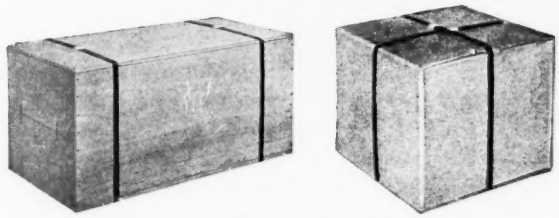
A free sample coil of Silverstitch will be gladly sent upon request to stapling wire users who would like to test it in their own plant.

NAILLESS STRAPPING EQUIPMENT

Acme Nailless Band is fast, efficient, and economical for the reinforcement of all types of packages. The Acme Seal is the strongest that it is possible to secure through the use of a mechanical hand sealing device.

Sealed Sample, Acme Nailless Band

The Acme Method increases the efficiency of the container, insures security in transit and safe delivery. In many cases it makes possible marked reductions in the thickness of container material, thereby reducing freight cost as well as package costs.



Nailless band applied to wood and fibre boxes

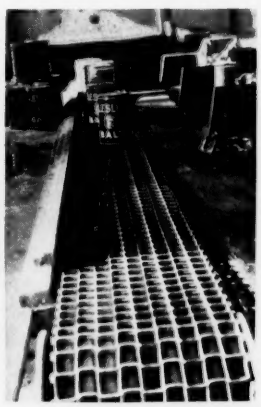
Manufacturers shipping in small packages can save money, in many instances, by strapping several packages together to secure a different express classification and a lower rate.

5 boxes bundled

Catalog No. 30 shows many ways to cut shipping cost. Sent free on request.

STEEL CONVEYOR BELTING

Acme Steel-Mesh Conveyor Belting is especially adapted for conveying products through drying ovens; for sorting, assembling, and many other manufacturing operations. The open mesh allows free circulation of air, heat, water, and steam. Products may be washed, cooled, filtered, sprayed, etc.



Drying labels on salt cartons

Acme Conveyor Belting is known for its long life under gruelling conditions. Worn sections are easily replaced. It may be lengthened or shortened by a few simple operations. Not affected by alternate drying and wetting and will not shrink or stretch.

Acme Belting may be had in any length. Widths at two inch intervals are available up to 60 inches. Send for descriptive folder.

MAKE your product's introduction a successful one

Since the package introduces the product to today's modern market, you can't be too careful to buy the best. For the right kind of package is a winner of sales—a powerful builder of brands. Its influence is felt wherever your goods are sold.

Canco containers will furnish an opening wedge for your products with new dealers. Brightly lithographed with your sales message and trade name, they will attract quick attention and *clinch* sales. Careful, competent construction and design give those who see your package the assurance of high quality inside. Our package men would like to talk things over with you and help to create for you a container that will win greater sales in dealers' stores.

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ARE you keeping in step with present day trends? Are you giving your product the package it deserves? A package that's modern—distinctive enough to increase the prestige of your brand?

Today attention for products begins with the package. The package has an important selling job to do. How it looks, how smart it is—these are vital features that have an important bearing on sales.

And the packages Canco Artists will create for your individual need are closely keyed both to your product and present day trends. In color, in smartness and beauty of design they are the last word in modern packaging.

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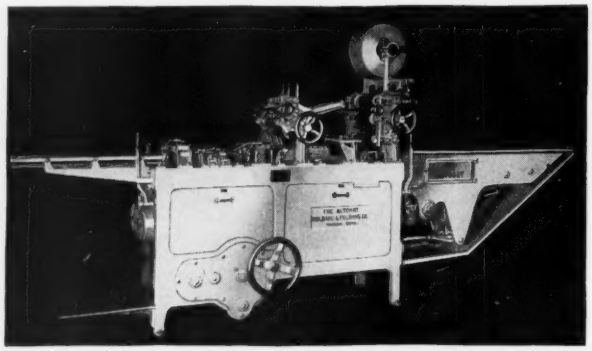
PRODUCTS

Wrapping and Cartoning Machines, Wrapping Machines, Tub Cutters and Printing Machines.

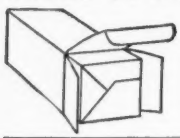


GENERAL INFORMATION ON WRAPPING AND CARTONING EQUIPMENT

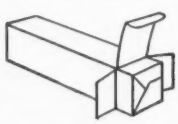
The principal advantages of Automat equipment are: reduced payroll, increased production, and saving in floor space. An outstanding feature of the Automat is the displacement of doubtful human hands with clean, sterile metal fingers, which makes it possible to wrap and carton butter without being touched with hands. The operation of Automat equipment does not require skilled help. Three operators will easily replace fifteen people using the hand wrap method. Standard cartons may be used, and printed parchment in rolls to fit the Automat are easily obtained. It folds a wrap which practically seals the print, and encloses butter in neat, square cut cartons without buckled ends.

Automat equipment is absolutely sanitary. All materials that come in contact with the product are either hard maple, monel metal or other nickel alloy.

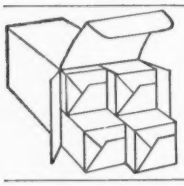
TYPES OF AUTOMATS



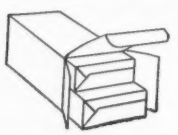
Type A. Wraps and cartons pound solids. Size of print 2½" x 2½" x 4¾". Capacity 4800 pounds an hour. Speed 80 pounds a minute. Occupies floor space 2 feet 3 inches by 11 feet 6 inches. Approximate weight 1900 pounds.



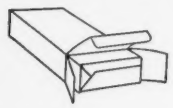
Type C. Wraps and cartons quarter pound prints. Size of print 1¼" x 1¼" x 4¾". Capacity 1500 pounds an hour. Speed 100 quarters, or 25 pounds, a minute. Occupies floor space 2 feet 3 inches by 10 feet 6 inches. Approximate weight 1600 pounds.



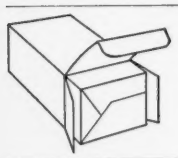
Type F. Wraps individual quarters in parchment and assembles four quarters in a pound carton. Size of print 1¼" x 1¼" x 4¾". Capacity 1500 pounds an hour. Speed 100 quarters, or 25 pounds, a minute. Occupies floor space 2 feet 3 inches by 12 feet. Approximate weight 1900 pounds.



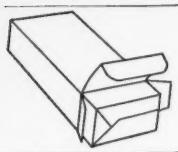
Type H. Wraps halves in parchment and assembles two halves in one pound cartons. Size of print 1¼" x 2½" x 4¾". Capacity 2400 pounds an hour. Speed 80 prints, or 40 pounds, a minute. Occupies floor space of 2 feet 3 inches by 12 feet. Approximate weight 1900 pounds.



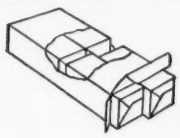
Type K. Wraps and cartons half pound prints. Size of print 1¼" x 2½" x 4¾". Capacity 2400 pounds an hour. Speed 80 halves, or 40 pounds, a minute. Occupies floor space of 2 feet 3 inches by 11 feet 6 inches. Approximate weight 1900 pounds.



Type P. A. Wraps and cartons pound solids in a Pennsylvania style carton. Size of print 2⅛" x 2⅞" x 4⅞". Capacity 4800 pounds an hour. Speed 80 pounds a minute. Occupies a floor space of 2 feet 2 inches by 11 feet 6 inches. Approximate weight 1900 pounds.

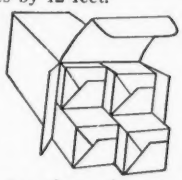


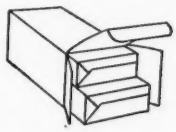
Type W. A. Wraps and cartons pound solids in a Western style carton. Size of print 1½" x 3" x 6½". Capacity 4800 pounds an hour. Speed 80 pounds a minute. Occupies a floor space of 2 feet 3 inches by 11 feet 6 inches. Approximate weight 1900 pounds.



Type W. F. Wraps individual quarters in parchment and assembles four quarters in a Western style pound carton. Size of print 1½" x 1½" x 3¼". Capacity 100 quarters, or 25 pounds, a minute. Occupies floor space 2 feet 3 inches by 11 feet 6 inches. Approximate weight 1900 pounds.

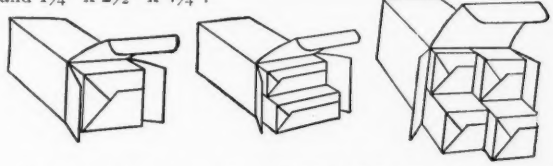
Dual Type. This model may be easily adjusted to wrap and carton four quarters or twin halves. Size of prints 1¼" x 1¼" x 4¾" to 1¼" x 2½" x 4¾". Capacity 1500 pounds an hour. Speed 100 quarters, or 25 pounds, a minute, or 50 halves, or 25 pounds, a minute. Occupies floor space of 2 feet 3 inches by 12 feet.





Sketches above show types of work which may be done on the Dual Type Automat by merely making a few easy adjustments. Approximate weight 1900 pounds. Send for Bulletin No. 2.

Triplex Type. This machine is the newest member of the Automat family of wrapping and cartoning machines. As the name implies, this model is designed to wrap prints of three distinct sizes, and automatically enclose them in pound cartons. With a few minor changes this machine may be adjusted to wrap and carton pound solids, twin halves or four quarters. The standard model is designed to handle the following print sizes: 2½" x 2½" x 4¾"; 1¼" x 1¼" x 4¾" and 1¼" x 2½" x 4¾".



Sketches above show types of work which may be done on the Triplex Type Automat by merely making a few easy adjustments. This machine really gives the advantages of three distinct Automats for but little more than the cost of a single machine. Approximate weight 2000 pounds. (Send for Bulletin No. 4.)

THE AUTOMAT MOLDING & FOLDING CO.

AUTOMAT ATTACHMENTS

The attachments shown on this page were made to meet the demands of the trade and have been designed to suit all models of the Automat lines.

PARCHMENT PERFORATOR

In response to a demand from the trade, we have perfected a parchment perforating attachment that may be used in conjunction with any Automat Wrapping and Cartoning Machine.

The utility of this attachment lies in the fact that every print wrapped carries with it a date or any other desired marking, perforated through the parchment paper. Such markings are of inestimable value in the case of returns or rejections. The figures or other markings are easily changeable.

10·25·29

Above is shown in actual size the style of markings furnished with the parchment perforating attachment. Other sizes and styles furnished upon request.

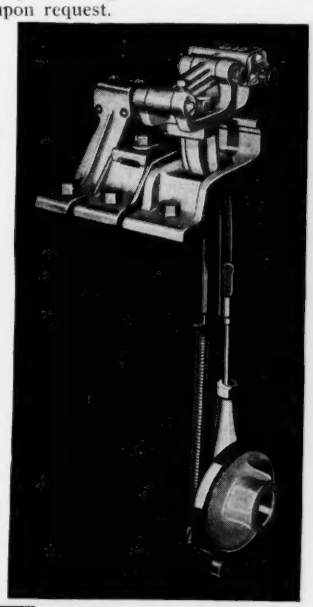
CARTON DATING DEVICE

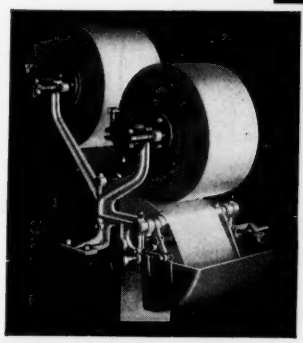
The utility of the carton dating device appeals to many plants as it offers a means of marking the carton showing date of production.

As the carton passes through the machine, this dating attachment automatically embosses a date on the flap of the carton.

This mark on the package serves as an identification of the age of the goods if they are returned to the plant, and has other advantages in keeping shipping records.

This device may be used in conjunction with any Automat wrapping and cartoning machine.

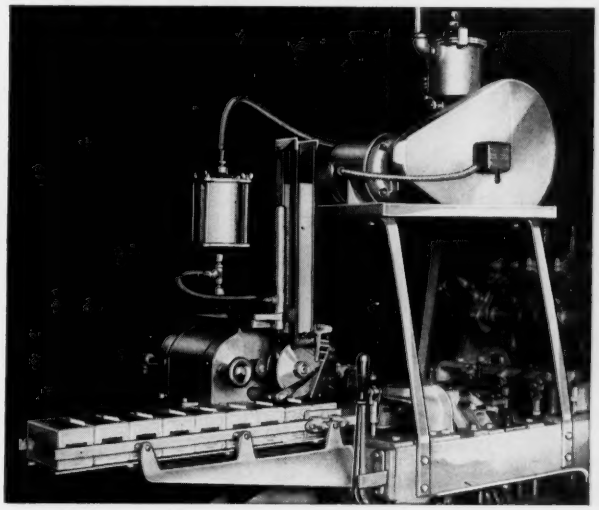




DOUBLE WRAP ATTACHMENT

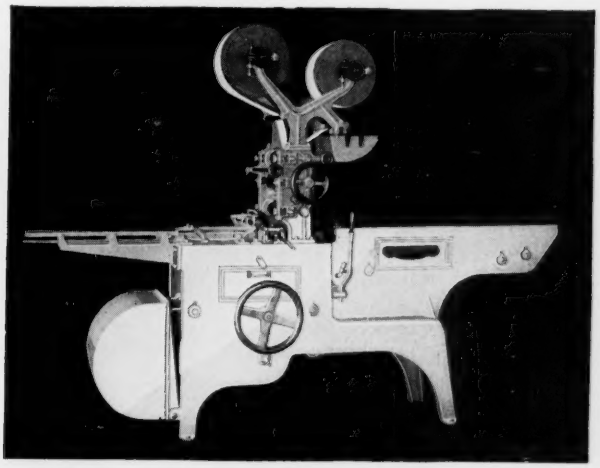
Butter may be kept in better condition over a longer period of time when the double, or wet wrap is used. This wrap consists of a parchment wrap passed through a brine or other solution, with a waxed wrapper on the outside. The threefold benefits of the double wrap are: retention of flavor; better keeping quality; less loss in weight.

SLIP OR PACKAGE FEEDER



This model was made to meet the demand of those who desire to enclose slips or coupons with prints. When slip or coupon is dropped into carton, enough is left visible to assure operator that each carton has received its slip. If one is missed it will be instantly detected. May be used with any style Automat Wrapper and Cartoner.

AUTOMAT WRAPPER



The Automat Parchment Wrapper was built to meet a demand for a wrapper without the cartoning unit, and may be equipped to use either single or double wrap. May be furnished to wrap pound solids, quarter pounds, or half pounds. Powered with a water-proof half horse power motor. Can also be made in Dual or Triplex type. Capacity and speed same as other models Automat wrappers and cartoners. Requires space 2 feet 3 inches by 8 feet. Approximate weight 1000 pounds.

AUTOMAT HYDRAULIC PRE-CUTTER

Designed to cut tub butter of low temperature and is hydraulic in operation. Butter may be cut into any suitable style or slab and when cut is automatically placed on the hopper table of the print making machine. Powered with a water-proof one horse power motor.

AUTOMAT SERVICE

While the sturdy build and quality of material in Automat machines assures almost constant smooth running performance, there is always instant response given a call for service. There is hardly a plant in the United States that is not within twelve hours' ride of an Automat service man.

THE ARABOL MANUFACTURING CO.

CHICAGO:
Office and Factory at
Cicero, Ill.

BOSTON:
12 Commercial Wharf

PHILADELPHIA:
620 So. Delaware Ave.

TORONTO:
13 King St., W.

Established 1885

Executive Offices
110 East 42nd Street
New York

Eastern Factory at Brooklyn, N. Y.
Western Factory at Cicero, Ill.

Telephone
NEW YORK OFFICES
Ashland 8490

Cable Address
"ARABOL," New York

FOREIGN AGENTS:
Representation in
GREAT BRITAIN, AUSTRALIA,
CUBA, MEXICO
and other countries

Largest and Oldest Adhesive Manufacturers in the World

GLUES, PASTES and GUMS

For all kinds of packaging operations

FOR GLASS LABELING

FOR TIN LABELING

FOR CARTON WRAPPING

FOR CARTON SEALING

FOR SEALING SHIPPING CASES

FOR PAPER BOX MAKERS

FOR PAPER BAG MAKERS

FOR SPECIAL OPERATIONS

For almost 50 years this organization has supplied packaging adhesives to the leading manufacturers and packers of the country.

Whether your packaging proposition requires labeling, wrapping, sealing or other adhesive operations we have the experience and the facilities for supplying the *right* glue to suit each specific need. *Reliability* and *Uniformity* have always distinguished ARABOL products.

We have perfected a special adhesive for every make of machine on the market which applies glue or paste in the process of packaging. Most of these adhesives have been developed in co-operation with the machine manufacturers and are recommended by them for producing best results with their equipment.

Each year we receive thousands of inquiries about glues, gums and pastes for packaging requirements. These inquiries come to us from practically every trade and every field of industry, and they cover a great variety of adhesive operations. We give careful study to each inquiry, and in most cases we can recommend an adhesive that will do exactly the work required. We are often asked to suggest a cheaper glue to take the place of a more expensive product.

All users of adhesives are invited to avail themselves of this service, without obligation. Whether adhesive requirements are simple or complicated we will be glad to offer suggestions based upon our adhesive experience of almost 50 years.

PACKAGE INSERTS *in* ROTOGRAVURE

—Attractive
—Economical

Print Your Inserts and Cross-Inserts in Rotogravure

Tell your public how to use your product with package inserts. Enjoyment and benefit from the use of the simplest and best-known commodities can be increased by carefully-prepared instructions.

Every thoroughly-merchandised product should have an insert in its package describing clearly, pictorially and dramatically how to use it and all the purposes for which it can be used. Until the purchaser knows those things, he can not be a satisfied user nor a potential buyer of another supply.

Dramatic package inserts and cross-inserts* in pictorial rotogravure are being used by many manufacturers because of their efficiency and economy. Every year we print millions of them, and an Art Gravure representative will be glad to tell you what we have learned about preparing successful ones. Specimens and full information gladly sent on request.

*CROSS-INSERTS — Descriptive circulars inserted with a packaged product which advertise other products made by the same manufacturer, a valuable, but frequently overlooked, method of merchandising.

Art Gravure Corporation

DESIGNERS AND PRINTERS OF ROTOGRAVURE ADVERTISING

NEW YORK · 406 West 31st Street · Tel. CHickering 4-8655
PHILADELPHIA · 1013 Public Ledger Building · Tel. Lombard 7358
BOSTON · 844 Park Square Building · Tel. Hancock 8917
CLEVELAND · Plain Dealer Building · Tel. Main 3580
CHICAGO · 310 South Racine Avenue · Tel. Monroe 5985

THE BAXTER
PAPER BOX CO
BRUNSWICK, MAINE

BAXTER BOX-CRAFTERS

Consistent with the grace and beauty of the particular article packaged in a BAXTER set-up box, be it perfumes, cosmetics, jewelry, or any other fine product, is that rare feeling of artistry so necessary to quality merchandising. Let the BAXTER BOX-CRAFTERS show you how the properly designed box enhances your product.

THE BAXTER PAPER BOX COMPANY

BRUNSWICK, MAINE
U. S. A.

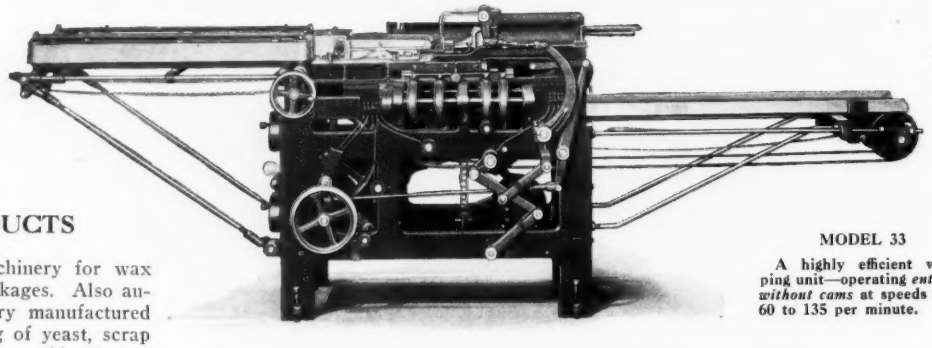
NEW YORK OFFICE
11 Park Place

REPRESENTATIVE
Walter T. Field

BATTLE CREEK WRAPPING MACHINE COMPANY

BATTLE CREEK, MICHIGAN

LONDON OFFICE: C. S. du Mont, Windsor House, Victoria St., Westminster S. W. 1



MODEL 33

A highly efficient wrapping unit—operating *entirely without cams* at speeds from 60 to 135 per minute.

PRODUCTS

Automatic machinery for wax wrapping all packages. Also automatic machinery manufactured for the wrapping of yeast, scrap tobacco, chewing gum, biscuit cartons, caddies (in kraft paper), confectionery packages, etc. Hand operated machinery for odd sizes, small production work, etc.

MODEL 33 WAX WRAPPING MACHINE

In many factories the daily total of packages hand-wrapped warrants the installation of an automatic machine, but this total may be the combination of 2 or 3, sometimes more sizes. Separately they do not warrant individual wrapping machines for each size, but in combination a large saving in hand-wrapping may be made with a convertible machine capable of handling several sizes.

A group of related package sizes handled in combination on one machine has heretofore represented a situation not practical or easily handled in daily practice. Much depended on the human element, and if an operator were not thoroughly familiar with all the changes necessary to alter a machine from one package size to another, the machine could not wrap efficiently.

CONVERTIBILITY

Convertibility on the Model 33 has been developed on a new principle. Instead of changing the location of parts, folders, etc., from one package to another, the entire equipment is removed from the machine and in its place is positioned additional equipment built for the next size to be wrapped. There is no fitting or adjusting to be done. The equipment is factory-built for the package to be wrapped and will always wrap that size package when placed on the machine and locked. Change in equipment from one size to another can be made accurately in 5 to 10 minutes.

OPERATION

Model 33 has been designed with the fixed purpose to build the most highly efficient wax wrapping unit, to secure complete quietness in operation through the use of rotary, actuating motions only, and yet to make this construction so simple as to be practically fool-proof.

Model 33 can scarcely be heard in operation save for the hum of the motor.

For simplicity and elimination of moving parts, all folders save one are stationary, and folding takes place as the package passes between them. All folding and sealing operations are made over an open table, with every part and all packages readily accessible.

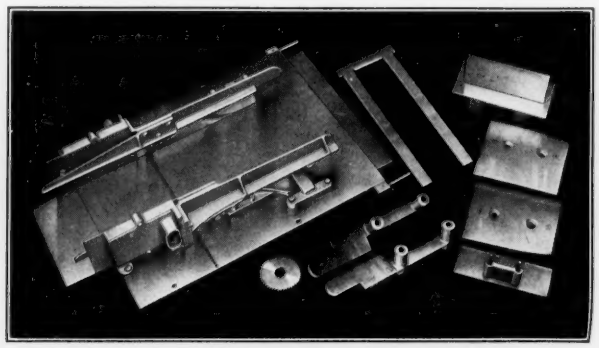
The finished wrapper is drawn as tightly as a glove about the package, and with most package shapes and sizes the envelope fold is used.

SPECIFICATIONS

Length—12 feet; Width—3 feet; Height—4 feet.
Weight—Approximately 2000 pounds.
Portability—The machine is mounted on casters for convenience of movement and carries four large leveling screws.
Electrical Equipment—One ½ horsepower motor, 4 electrically heated sealing units (with extra units for each additional set of folding equipment), heat control rheostat, pilot light, extension cord.
Speed—60 to 135 packages per minute (speed varies according to size or sizes wrapped).
Weight Paper Recommended—31 to 35 pounds after waxing.
Automatic Package Trip—Automatic trip allows packages to enter machine only in correct position for wrapping and also unlocks paper feed only when package is correctly located for wrapping.

View of package combination now being handled on one machine.

View of equipment change needed to convert machine from one package size to another.



JOHNSON AUTOMATIC SEALER COMPANY

BATTLE CREEK, MICHIGAN

(Subsidiary of Battle Creek Wrapping Machine Co.)

LONDON OFFICE: C. S. du Mont, Windsor House, Victoria St., Westminster S. W. 1

PRODUCTS

Greater Capacity Automatic Packaging Machinery —Airtight Sealed Cellophane Wrappers, Wax Wrappers, Top and Bottom Sealers, Carton Feeders, Fillers, Gross and Net Weight Scales.

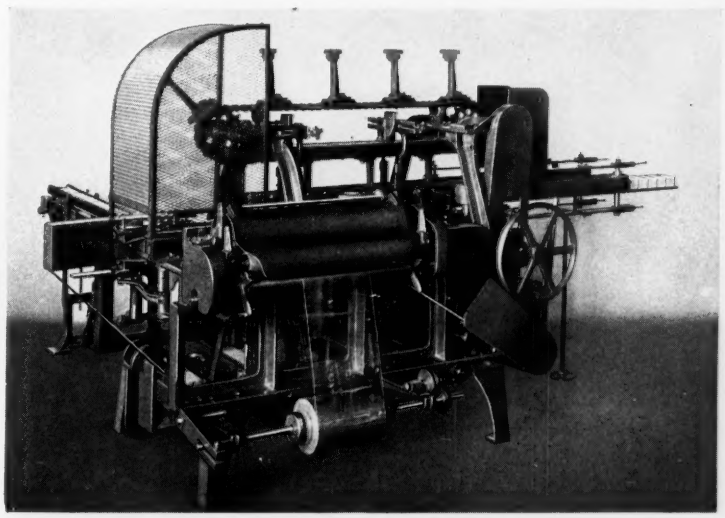
Johnson Automatic Cellophane Wrapper (Greater Capacity Model C)

The steady increase in cellophane packaging has made this Johnson high speed machine one of the most important in the packaging field. A dominant feature is its ability to seal cellophane airtight and moisture proof as a fully protective wrapping. This is accomplished automatically as the package is wrapped and folded.

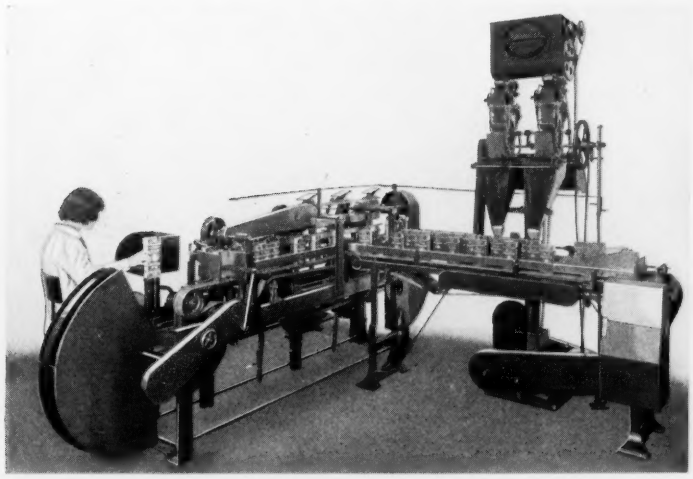
To cellophane's display value is thus added a positive protective value which will materially increase its usefulness in many packaged lines. Packages sealed on this machine have been immersed in water, and, when opened, betrayed not a trace of moisture inside the wrapper.

In speed the operation naturally varies according to package size, but on medium sizes there is a guaranteed rate of 50 to 60 per minute. This conservative guarantee is usually exceeded in practice.

A smaller portable cellophane wrapper, for small volume work, can also be furnished, known as Model B. Not in any sense competitive with high speed machines, it is at the same time fully automatic and performs this sequence of operations: paper cutting, wrapping, folding, sealing and delivery. One operator does the work of four to six hand wrappers.



Combination Bottom and Top Sealing Machine with Net Weight Scale (Model L)



Johnson Automatic Combination Bottom and Top Sealing Machine with Net Weight Scale.

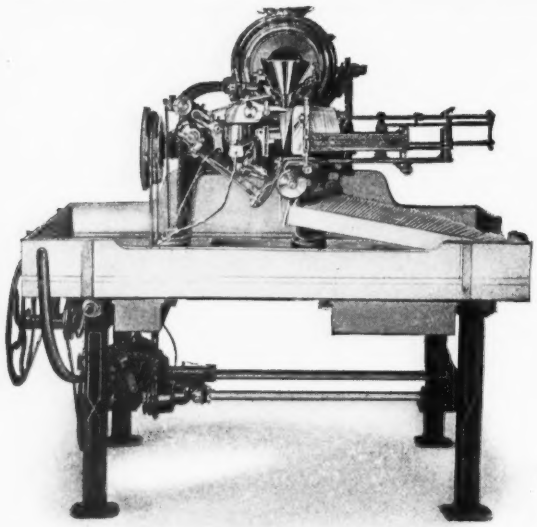
Johnson combination automatic top and bottom sealer with net weight scales—not to be confused with Johnson high speed sealers and scales.

A fully automatic low priced unit, to fill the needs of manufacturers with smaller runs, odd sizes, etc., not warranting an investment in high speed machinery. Can be furnished either with or without scales. Complete packaging operations are accomplished automatically—bottom sealing, return to scales, weighing, top sealing—with **one** operator.

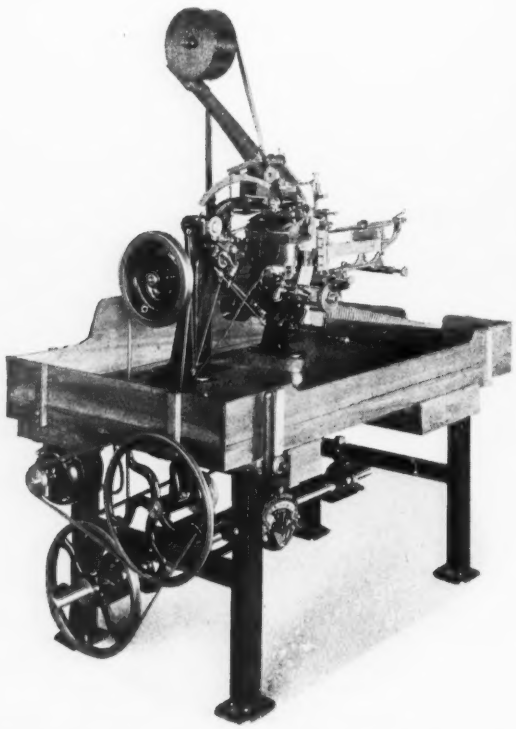
THE BROWN BAG-FILLING MACHINE CO.

FITCHBURG, MASS., U. S. A.

Manufacturers of Automatic Machines for Putting Up Dry Materials and Seeds in Flat Packets



For use by seedsmen and for cocoa, chocolate and any free flowing materials from a few grains to 3 or 4 oz. where the volume is not excessive. Similar machine with large square hopper is used by seedsmen for filling large quantities of peas, corn, etc., by weight (4 to 5 oz.) Also fills small candies, salted nuts and chocolate-covered raisins by weight and volume in flat bags.



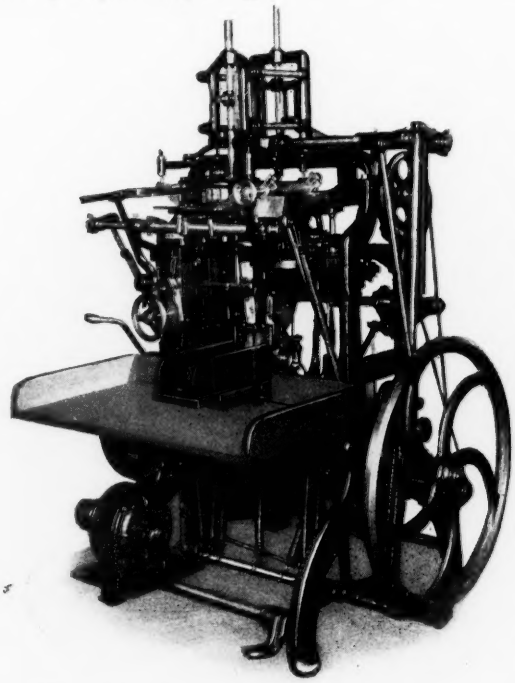
For pills, tablets, small screws, rubber heel nails, etc., by count.

BROWN BAG-FILLING MACHINES

Are designed for the filling of flat paper packets with measured quantities of dry materials, seeds, granules, tablets, pills, or powders. They measure the material, open the packet, fill it, gum it, turn and seal the flap and deliver the packets stacked.

The machine requires but one operator to attend to it and runs automatically, discharging the sealed packets at the rate of two to three thousand per hour, according to the material to be packeted, dry and ready for packing, or immediate use.

Any kind of dry, granulated or compressed material or any seed that will pour can be handled by the machine. Material is measured with absolute accuracy, in respect to both count and weight, and can be regulated to fill from one ounce to a fraction of a grain. When once fixed, over a hundred thousand bags may be filled without variation giving a net saving of as high as ten per cent over handwork. Catalog PC 30 describes these machines fully and gives names of many users showing diversity of product packaged.



BROWN BAG-MAKING MACHINE

This machine is the highest development in envelope machines, is most thoroughly and carefully made, and is warranted to make envelope packets that are tight at the corners, absolutely alike and perfectly true and even. It can work on glassine, kraft or other types of paper.

Interchangeable parts can be supplied with this machine to make different sizes of packets, and changes can be made from one size to another very quickly and without trouble, and without the services of a machinist.

The machine is operated by one person, and can be run by ¼ H.P. motor. Capacity: 60,000 bags per day.

ARTCOTE

LUXURIOUS

DEPENDABLE

PAPERS

Toiletries group showing use of ARTCOTE Papers for labels.

Halftone Engraving
133 Screen

The outstanding features of ARTCOTE gold and silver papers of particular interest to the packaging and advertising field, are that they are water proof, protected, sulphur free, retain their brilliancy, glue, fold, bend well and will not rub—of special interest to embossed seal manufacturers.

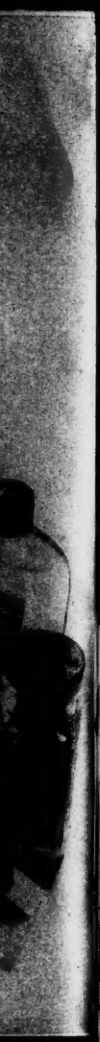
ARTCOTE papers emboss and die cut readily, inks lay well without picking or absorbing, insuring deep, solid and brilliant colors.

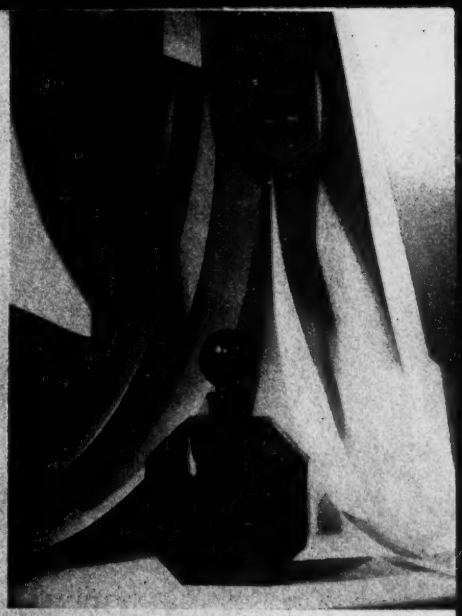
ARTCOTE Gold and silver papers can be furnished gummed or ungummed with non-block all purpose adhesive.

There are different weights and grades for every requirement.

Reproduction of labels and embossed seals produced on ARTCOTE gummed paper.

120 Screen Halftone Engraving with color plate





An illustration of the unique photographic effects possible on ARTCOTE. No halftone is too fine, nor too coarse, for use on the surface of this paper.

133 Screen Halftone Engraving

The clean, smooth surface of ARTCOTE gold and silver papers brings dignity and smartness to your label, box covering, package and printed matter.

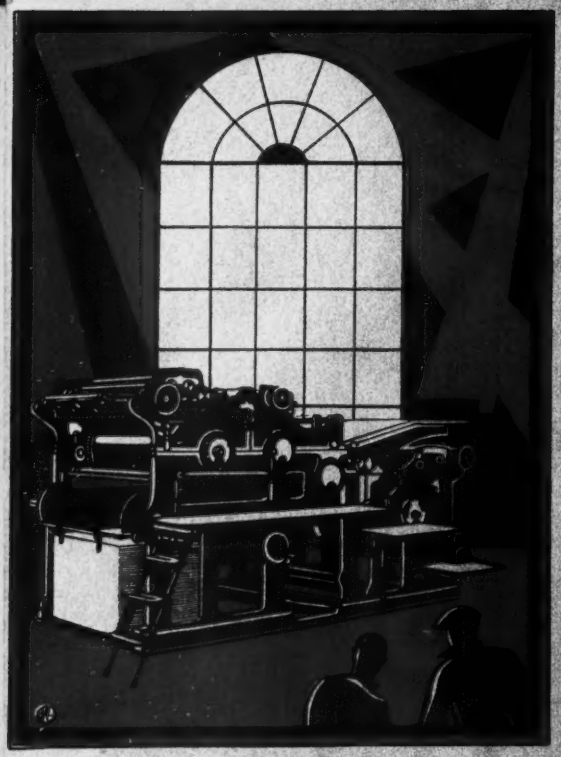
The full brilliance of these papers is reflected from their rich gleaming surfaces, and yet ARTCOTE papers are smooth enough to reproduce letterpress printing in any form. They are suitable for zincs, halftones, color process, offset, lithography, gravure, die stamping, and other methods of modern reproduction.

Their individuality and character immediately impart a feeling of prestige, and combined with their admirable versatility—printing—embossing and folding qualities—make a powerful sales producing combination.

To insure dependability and luxuriousness, specify ARTCOTE

Illustrating ARTCOTE covered boxes. These box wraps were printed in several colors and embossed. Typical of the unusual effects which are being obtained with ARTCOTE papers.

120 Screen Halftone Engraving



Two color effect produced with zinc cuts. For startling color combinations this is a most effective medium.

ARTCOTE GRAPHIC

ARTCOTE GRAPHIC gold and silver papers are put up in standard, trimmed sheet form in sealed packages for the Graphic Arts—gold or silver surface on one side, white on the other. Both surfaces are especially treated for inks, no special make ready being required.

The gummed stock is furnished with the strongest adhesive coating that is put on any paper due to the various surfaces to which it must adhere. The paper is treated in such a way as to prevent blocking and curling.

The folding cover stocks are furnished in approximately 10 and 15 point thicknesses and possess unusual strength and folding qualities. They can be folded either with or against the grain with equally satisfactory results.

ARTCOTE papers are especially adaptable for anniversary announcements, labels, etc.

ARTCOTE PAPERS
INC.
IRVINGTON, N. J.

BURT MACHINE COMPANY

BALTIMORE, MARYLAND

CHICAGO, ILL. NEW YORK CITY SAN FRANCISCO LOS ANGELES

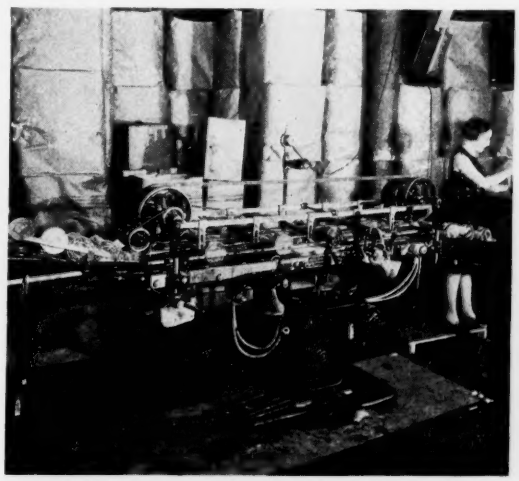
Manufacturers and Designers of Automatic Labeling and Casing Machinery

PRODUCTS

Automatic Casing, Labeling and Inspecting Machines.

LABELING MACHINES

There are seven models of the Labeling Machines. There is one for spot labeling No. 10 cans and also applying full-length labels; one for No. 10 cans and full-length labels only; one for cans with ears and full-length labels; one for slip-over cans; one for applying labels to flat surfaces; a Junior Labeler for small output, and a Labeler known as Model A and adjustable Model A, both for applying labels which overlap to round containers, whether they be of tin, fibre or glass. These A models operate at the rate of 208 cans a minute when running at regular speed. Model A is for



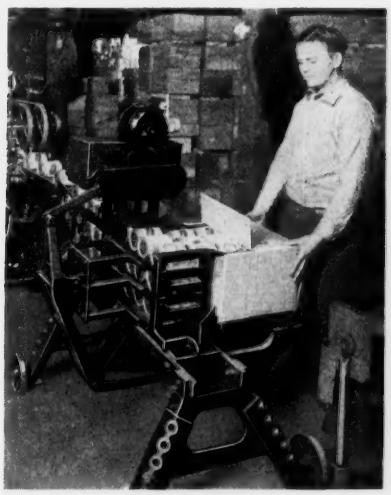
Model A Burt Labeling Machine

one size of can, which can also be had for cans with two or more different heights, providing the diameter is the same. The adjustable Model A is an adjustable diameter type (2 or more diameters) with the heights built to order. Both these machines rest solidly when ready for use, but can instantly be made portable by simply raising the base lever, which throws the center wheels in contact with the floor. All adjustments, such as adding glue and paste, regulating paste supply to lap, increasing contact of labels with the cans at the pick up, changing positions of the label on the can, may be made while the machine is running. Only for replenishing labels need the machine be stopped. The label feed is positive because the upward travel of the label is automatic, whether there be 100 or 1000 labels on the table. One knob permits the raising or lowering of this table. The pick-up pot has a reservoir on the outside of the labeler, which facilitates the refilling of glue and also makes the supply visible at all times. A drain cock makes it unnecessary to remove the pot for cleaning. Although these models are generally equipped for a hot pick-up with automatic temperature regulator, a special pot can be furnished for cold gum. The curling bar has four corners and is reversible. These square corners provide the necessary sharpness which gives the laps of the labels the decided curl. A one-quarter horse-power motor is used, this being connected to the machine via a shaft drive.

All Burt Machines are entirely constructed of metal. The Model A machines, suitable for 4¼″ diameter cans with run-downs raised, are about 10′ 7″ long, with the standard length front and back run-downs, which are 2′ 8″ each. Machines for smaller diameter cans are from 1′ to 2′ shorter. All standard machines are 1′ 6″ wide and about 4′ 5″ high.

CASING MACHINE

The Burt Electro Caser permits, with a slight touch of the foot on the treadle, a layer of cans to be pushed into a wooden, solid fibre or corrugated case. This machine also spreads the flaps of the cases when the cases are put into position for receiving the cans. It is built on adjustable legs, suitable for a height of from 19 to 30″ at the take-off, the maximum height allowing fibre cases coming off at the proper elevation for entering into automatic sealer. The lifting gate type of separator is used, this being a perfect can separating medium, since it contains no blades, springs or other delicate parts. The entire machine is 6′ 10″ long and 2′ 2″ wide, weighing 550 pounds.



Burt Casing Machine

INSPECTOR MACHINE

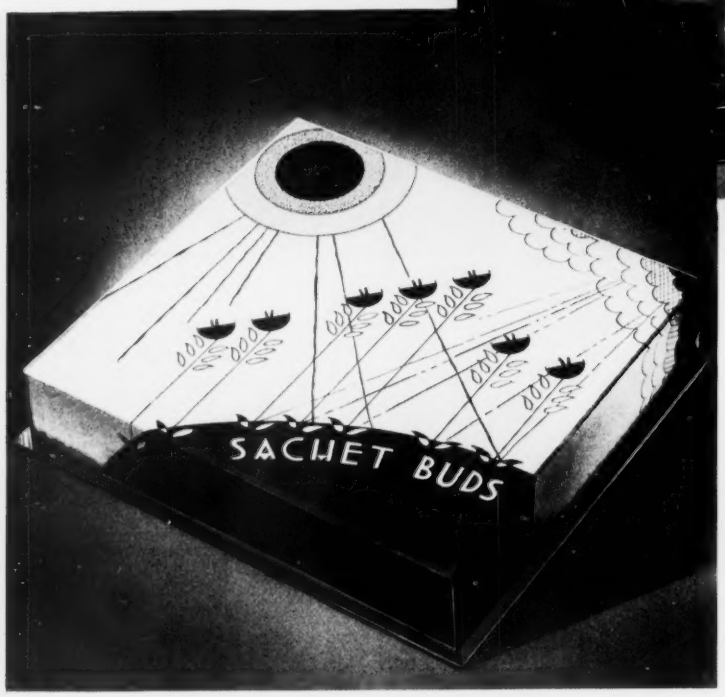
This is attached to the discharge end of the labeling machine and automatically throws out any can which has missed a label.

A PACKAGING PROBLEM BECOMES A MERCHANDISING IDEA

A client of ours came to us with a problem. He had a little cotton, orris-root and perfumed talcum which he wanted to present as a well known cosmetic, sachet, in a new form.

He left this problem entirely in our hands and the result more than justified his action. The solution of his problem was the container shown here, which not only presents his product in an impressive form but is a unique container to hold the product.

This is but one of the many problems which are handled by us . . . much harder ones too . . . but the results were always the same. The customer was satisfied—his packaging problem became a merchandising idea.



Correct packaging stimulates sales—Package merchandising is a definite business in which we are well equipped.

Write us your problems—let us solve them!

IVANHOE

ART DIVISION CAMBRIDGE PAPER BOX COMPANY

PERRY-SHEPHERD COMPANY

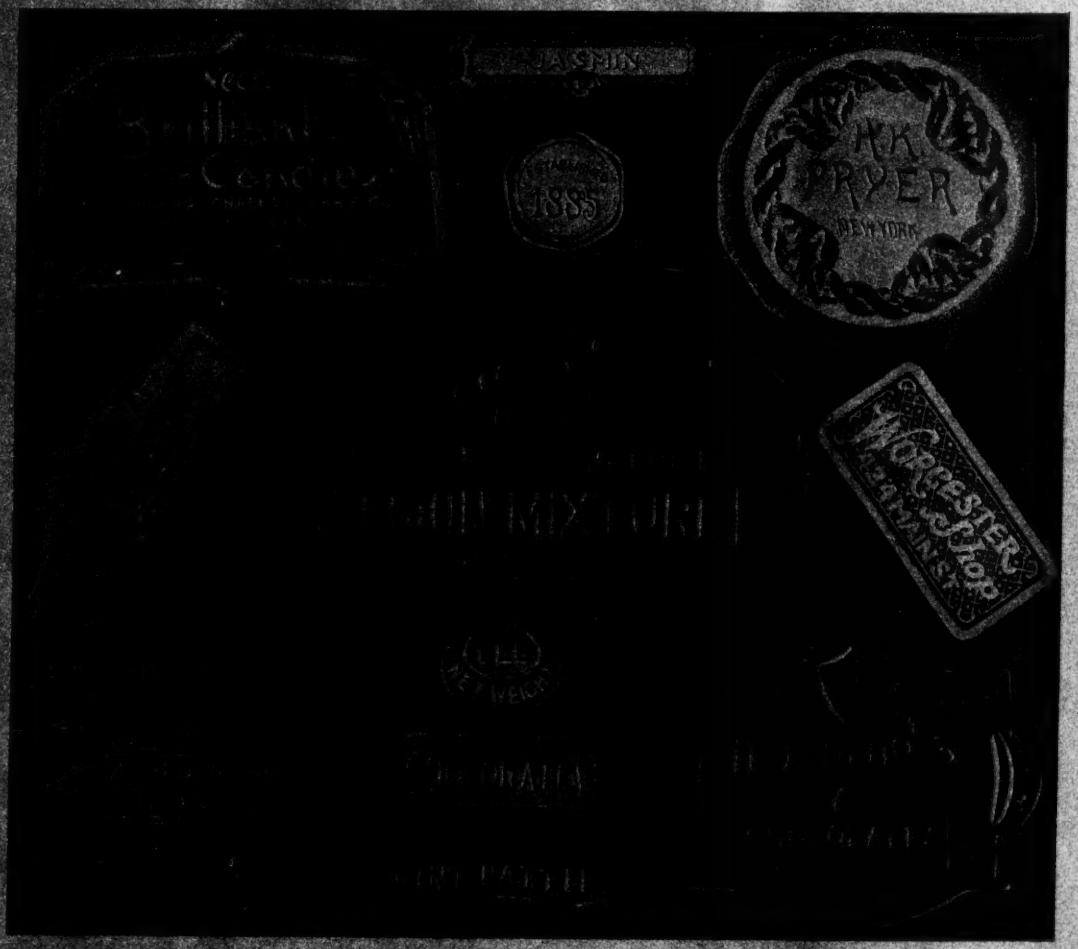
ONE NINETY-SIX BROADWAY

Cambridge, Massachusetts

STOCK SEALS

A large selection and variety of embossed seals are carried in stock at all times, ready for immediate delivery. The stock seals include those for candy and perfumes.

Large runs for hosiery mills with size changes in toe stickers, our specialty.

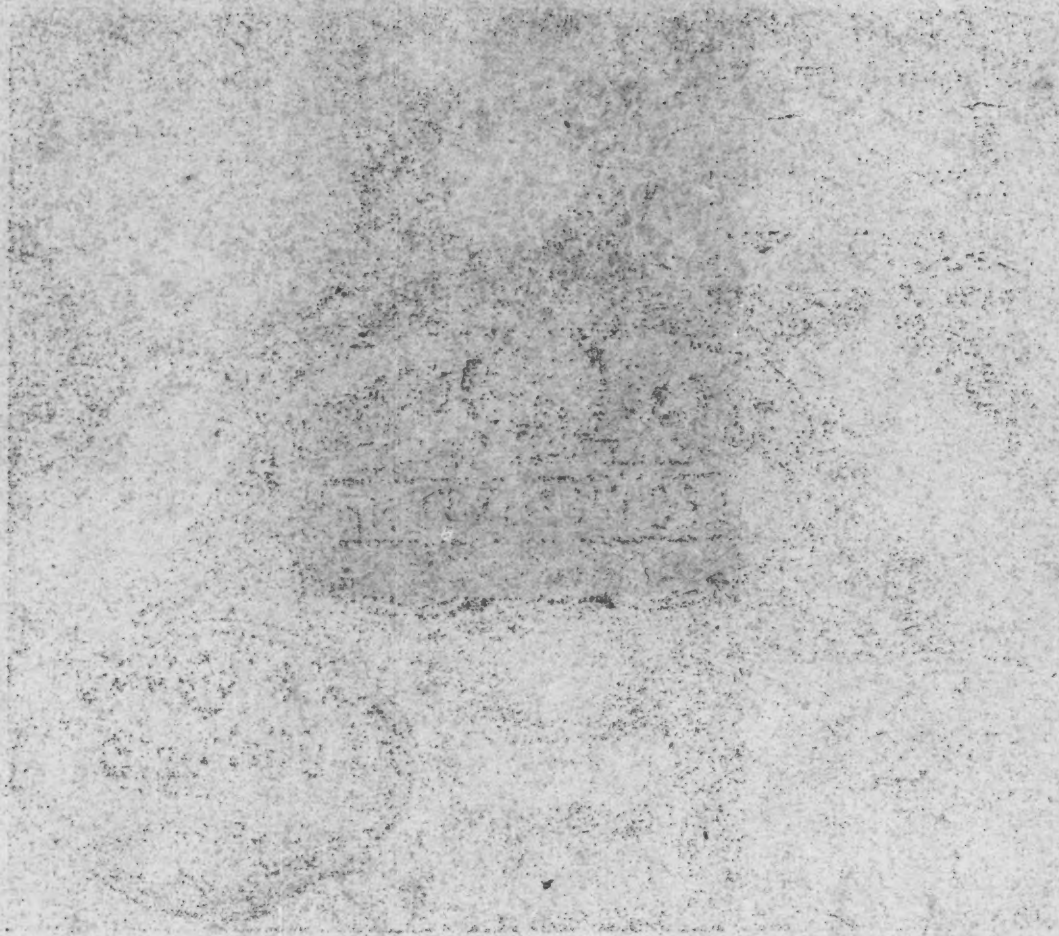


Users of large quantities will be interested in our special seal department, where runs are made up at prices surprisingly low. Sample book and seals sent upon request.

A sketch will be furnished you on request, if you will give us a rough description of what you want.

WILLIAM W. BEVAN COMPANY

PARKWAY AT VINE ST. EVERETT, MASS.



STURDITE

REG. U. S. PAT. OFF

PRODUCTS

FRENCH SHELL

•

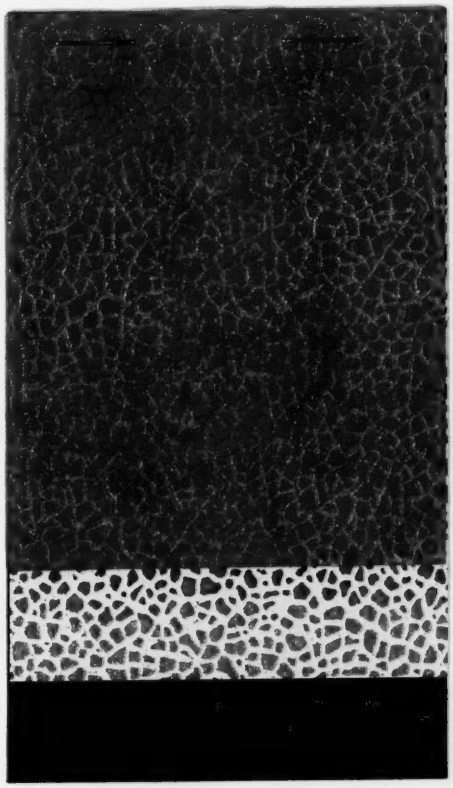
FRENCH LACE

•

FLORENTINE

•

COLONIAL



LEVANT

•

REPTILIAN

•

PIG GRAIN

•

OSTRICH

The finest leather papers are made in the United States. They are Sturdite.

Any of these patterns and colorings can be had in the Sturdite cloth-backed form.

Complete range of colors in swatch books.

Waterproof, grease proof and scuff proof.

L. E. CARPENTER & CO INC

Pyroxylin Coated Products

444 Frelinghuysen Ave. Newark, N. J.

CARTONING MACHINERY CORPORATION

Designers and Manufacturers of Automatic Packaging Machinery

GENERAL OFFICE AND PLANT: NEWPORT, RHODE ISLAND

PRODUCTS

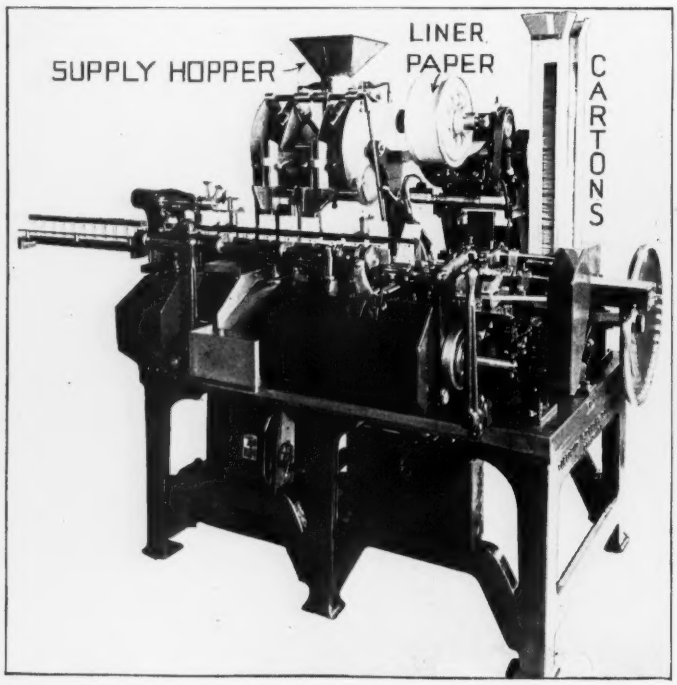
Cartoning Machines (combination and single purpose).

Wrapping Machines (waxed paper, foil, glassine and cellophane).

Complete Packaging Machines (cartoning and wrapping cough drops, tablets, powders, macaroni, candies, cereals, etc.).

Bundling Machines (pencils, cigarettes, cigars).

Bag Filling Machines (peanuts, coffee, powders).

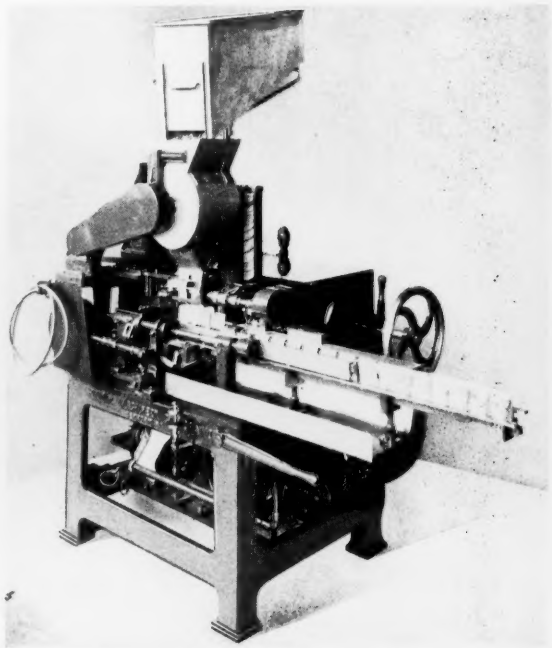


Carton Filling Machine

The Carton Filling Machine is a complete packaging machine on one base. It can be adapted to handle cartons of various dimensions, to contain materials in quantities of one ounce up to one pound, at a speed of 50 to 120 packages per minute.

The machine is so designed that the customer may have an option on any of the following attachments, built into his machine to suit his particular package:

1. Carton Lining Attachment
   (a) For wax paper with heat sealing
   (b) For glassine paper with gluing
2. Carton Wrapping Attachment
   (a) For wax paper
   (b) For glassine
   (c) For cellophane
3. Measuring Devices
   (a) For counting
   (b) For volumetric measuring
   (c) For weighing
4. Circular Folding and Inserting Attachment.
5. The style of carton may be reverse tuck, straight tuck, or seal end



Bag Filling Machine

The Bag Filling Machine is designed for automatically filling and sealing satchel bottom or straight bottom bags and envelopes with accurately measured quantities of peanuts, small candies, powders, tablets, coffee, rice, and various free-flowing products in amounts from one ounce up to one pound at speeds of 40 to 60 packages per minute.

"Our engineering service is available, without charge, for consideration and report on any packaging problem."

Cameo Cut
Labels & Seals

ARTHUR COLTON COMPANY

DETROIT, MICHIGAN

GENERAL OFFICES: **2600 East Jefferson Avenue**

PLANTS

2600-2628 East Jefferson Avenue
300-388 Chene Street
2601-2629 Franklin Street

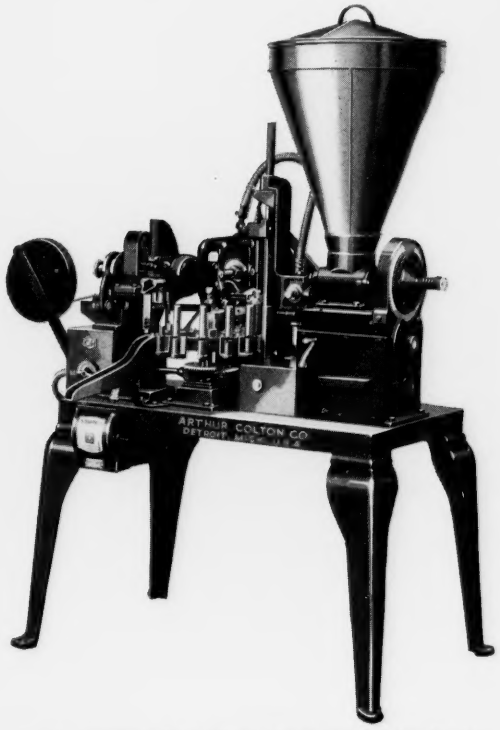
Designers and Builders of:

Pill, Tablet, Globule and Suppository Making Machines
Tube Filling Closing and Clipping Machinery
Tablet and Pill Counting and Boxing Machinery
Can, Jar, and Bottle Filling Machines
Tube Clips
Mint Wrapping and Labelling Machines
Special Machinery to order

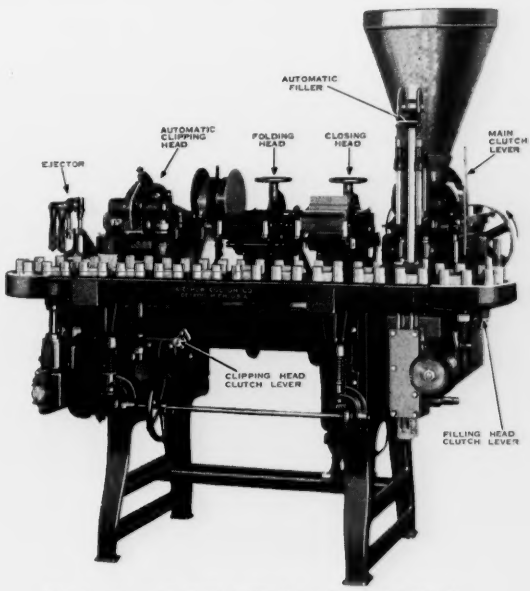
NO. 14 AUTOMATIC PASTE FILLER, CLOSER AND CLIP FASTENER

(For Materials in Semi-Fluid and Paste Form)

This machine is a completely automatic filling, closing and clip fastening unit for collapsible tubes and is recommended where the production does not warrant the use of our larger No. 6-C and No. 7 machines or where there are different sizes of tubes to be filled.



No. 14 Automatic Tube Filling, Closing and Clipping Machine



No. 7 Automatic Filling, Closing and Clipping Machine

NO. 7 COMBINATION PASTE FILLING, CLOSING, WIPING, FOLDING AND CLIPPING MACHINE

(For Semi-Fluids and Paste)

This machine performs all operations in the handling of collapsible tubes, except cartoning, with ONE operator. It is designed to handle tubes larger than 1⅛" diameter. Tubes 1⅛" or smaller should be handled on our No. 6C machine.

We are the largest makers of Pharmaceutical Machinery and Tube Filling and Closing Equipment in the world. Our line embraces over two hundred machines designed to facilitate the making and packing of practically all medicinal products and toilet goods. We also design and build all kinds of special purpose machines.

Write for Catalog "P".

CONSOLIDATED PACKAGING MACHINERY CORP.
BUFFALO, N. Y.

OPERATING
CAPEM MACHINERY CORP.
HOEPNER AUTOMATIC MACHINERY CORP.

NEW YORK
CHICAGO
BUFFALO
BOSTON
SAN FRANCISCO
HOUSTON
MEMPHIS
LONDON

1400 WEST AVENUE
BUFFALO, N. Y.

American Industry
United States of America

Gentlemen:

We invite your inquiry on both standard and special automatic equipment of the following general types:-

HOEPNER: Weighing, Dry Filling, Bag Closing, Carton Sealing, Bag Sewing, Powder Packing

CAPEM: Screw Capping, Cap Sorting, Cap Fastening, Friction Cappers, Tube Finishing

Respectfully,

CONSOLIDATED PACKAGING MACHINERY CORP.

EGH:MGB

30 years of progress . . . . .

. . . in the development of successful packaging machinery for American industry

CONSOLIDATED PACKAGING MACHINERY CORP.

HOEPNER AUTO MCHNY. CO. Division

1400 West Avenue
BUFFALO, N. Y.

CAPEM MACHINERY CORP. Division

CONTAINERS
BY CONTINENTAL

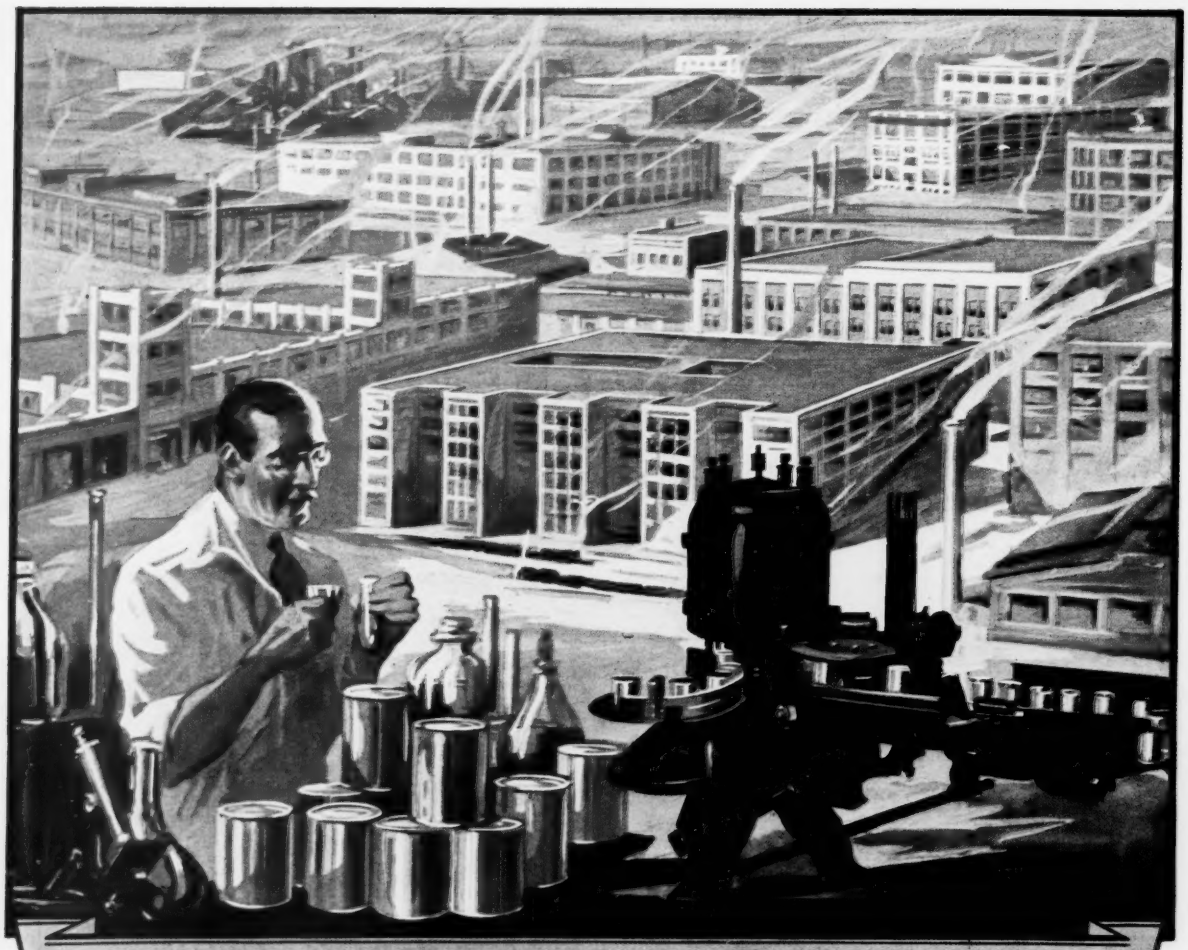
There is a Continental Can to meet your every packaging need — and some available only from Continental. Continental products range from small sampling cans to 110-pound lard drums, from designs in few to many colors, in a variety of shapes, sizes and styles. Continental's large resources in plants, Research and Development Laboratories, and trained organization offer the utmost in quality of cans and in service, with all that this implies.

"It's Better Packed in Tin"

CONTINENTAL CAN COMPANY INC.

Executive Offices: NEW YORK: 100 East 42nd Street CHICAGO: 111 West Washington Street
SAN FRANCISCO: 155 Montgomery Street

CHICAGO	CINCINNATI	WHEELING	PASSAIC	SAN JOSE	BALTIMORE	OAKLAND	NEW ORLEANS	ROANOKE
BOSTON	DETROIT	JERSEY CITY	LOS ANGELES	CLEARING	CANONSBURG	JACKSONVILLE	SAN FRANCISCO	SYRACUSE
NASHVILLE	HURLOCK, MD.	DALLAS	E. ST. LOUIS	DENVER	SEATTLE	BEDFORD, VA.	KANSAS CITY, MO.	HAVANA, CUBA



BEHIND THE CONTINENTAL CANS YOU BUY IS A COMPANY WITH TREMENDOUS RESOURCES FOR SERVICE

Continental cans are definite and dependable factors in the distribution of thousands of products the world over.

Millions of homes look to thousands of manufacturers for products of every description protected by the tin can. These manufacturers in turn look to Continental as their never failing source of supply for quality cans.

Behind Continental cans are 35 plants advantageously located from coast to coast—in 24 principal cities of the United States and Cuba—hundreds of experienced representatives—Research and Development Laboratories constantly making improvements in cans, in the preserving of foods and rendering service.

An efficient organization of men trained thru life-long experience to produce the utmost in quality and service are anxious to give your packaging problems the personal interest and attention they deserve.

CONTINENTAL CAN COMPANY, INC.

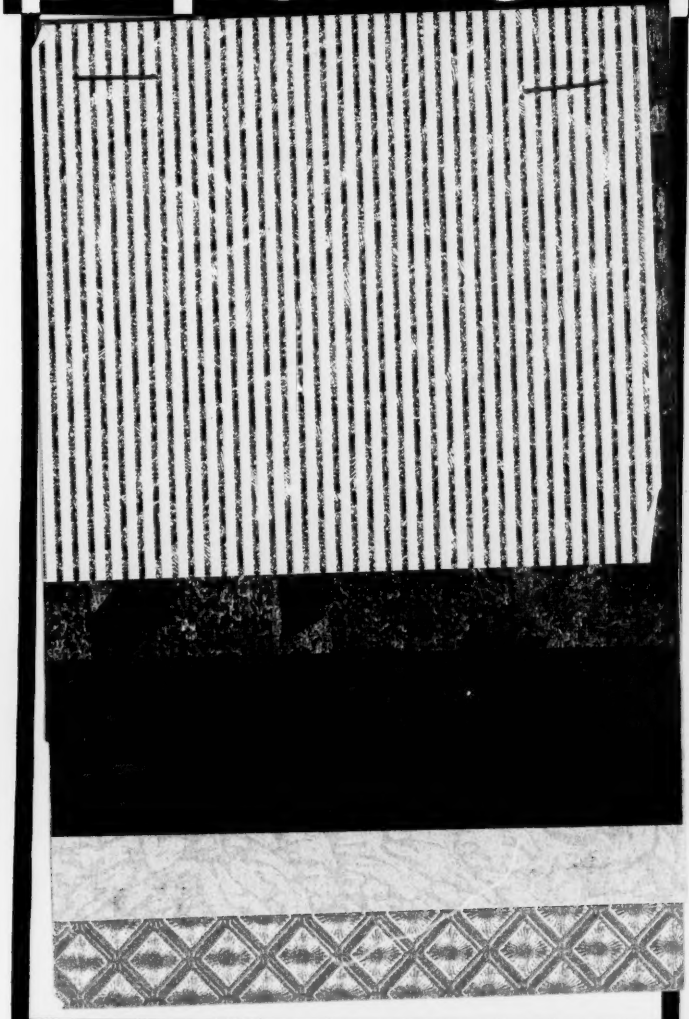
Executive Offices: NEW YORK: 100 East 42nd Street CHICAGO: 111 West Washington Street
SAN FRANCISCO: 155 Montgomery Street

CHICAGO	BALTIMORE	DETROIT	ALBANY, GA.	DALLAS
CINCINNATI	OAKLAND	JERSEY CITY	SAN FRANCISCO	E. ST. LOUIS
WHEELING	NEW ORLEANS	LOS ANGELES	SYRACUSE	DENVER
PASSAIC	ROANOKE	CLEARING	NASHVILLE	SEATTLE
SAN JOSE	BOSTON	CANONSBURG	HURLOCK, MD.	BEDFORD, VA.
	KANSAS CITY, MO.	HAVANA, CUBA		

"It's Better Packed in Tin"

1905 — CONTINENTAL'S SILVER ANNIVERSARY — 1930

paper for packaging



A brilliant variety of designs and patterns in fancy papers for box coverings is now ready for distribution. The high standard of quality in Cranmer Papers and the unusual array of colorful designs presage sales-compelling packages. Sample books submitted upon request.

No. 10-82 Silver Stripe

No. 27-79 Gold Printed and Embossed

No. 62 Blue Multi-Mesh

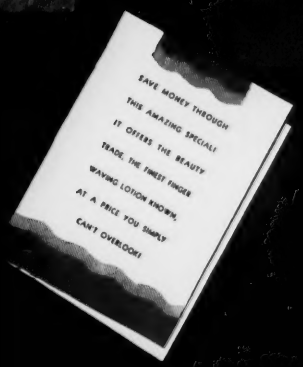
No. 101 Pattern Brown Embossed

No. 101 Pattern Platinum Embossed

No. 112 Pattern Gold Embossed

The
HARRY M. CRANMER CO.
161 Devonshire Street
BOSTON · MASS

• PAPER •
COATED • FANCY • PRINTED • EMBOSSED



any concerns have found our facilities a means of economy and convenience; from the creation of original designs to the manufacture of the finished package, including cartons — display containers — labels — folders and display cards. » » Consult with us on how to develop the new complete package for your product.

TELEPHONE WALKER 9494★

BROOKS & PORTER
INCORPORATED
304 HUDSON STREET, NEW YORK

Milestones of Modern Merchandising—

That Girdle the Globe

There are names and products that are known and available in populous cities and at the crossroads of civilization—veritable monuments to the perspicacity of the manufacturers who have recognized the importance of containers that make it easy for anyone to buy.

An amazing and increasing number of products are being packed in tubes, such as jams, cake icing, peanut butter, salad dressing, lard, pastes, ointments, granular and powdered products. In addition to their convenience and attractiveness, tubes protect these products from the effects of the atmosphere.

Complete line of Leak-proof Sprinkler Tops

Let our 94 years' experience help you solve your packaging problems.

A. H. WIRZ, Inc.

ESTABLISHED 1836

Collapsible Tubes *Metal Sprinkler Tops*

CHESTER, PENNSYLVANIA

NEW YORK
50 East 42nd Street
Phone: MURray Hill 5447

CHICAGO
Railway Exchange Bldg., Jackson & Michigan
Phone: HARrison 5015-5016

LOS ANGELES
1231 E. Seventh Street
Phone: TUCker 4150

DESIGNS TO LURE THE BUYER'S EYE • • •

IT may strike home harder right *now*, but is there ever a time when sales won't stand stimulating?

A brighter, more appealing package will quicken sales even for a long established product. It is only one of the ways to get more buyers, but it is important.

Perhaps one of the new designs created by Wirz as a service to users of Wirz Tubes would be suitable for a product you make and would speed up both distribution and demand.

Your request for more information will have prompt attention.

A. H. WIRZ, Inc.

ESTABLISHED 1836

Collapsible Tubes *Metal Sprinkler Tops*

CHESTER, PENNSYLVANIA

NEW YORK
50 East 42nd Street
Phone: MURray Hill 5447

CHICAGO
Railway Exchange Bldg., Jackson & Michigan
Phone: HARrison 3015-3016

LOS ANGELES
1251 E. Seventh Street
Phone: TUCker 4150

What other stock can claim

USE KERATOL-COVERED BOXES

for

biscuits	Crystalwares	fountainpen sets	perfumes	travel kits
buckles*	collars	giftwares	pipes*	stationery
book-sets	cosmetics*	instruments	razors*	belts
bridge sets	cigarettes*	jewelry	soaps	and
BonVoyage boxes	cigar lighters*	manicure sets	shaving kits	what
candy	eyeglass cases	opera glasses	sewing kits	have
cutlery	field glasses	pullman slippers	shaker sets	you?

As a matter of fact single products, or unit groups which can be merchandised by added "gift appeal", should be attractively packaged in

boxes that "look like a gift"

Complete co-operation, samples, and information to interested executives

* Shown in illustrations.

these Points of Preference?

▲ **outstanding appeal**
Merchandise clad in eye-attracting Keratol dominates the attention of the shopper

▲ **better protection**
Keratol is moisture and dust proof; it withstands the handling of clerks and customers, and a damp cloth will remove soiled spots

▲ **more durable**
Stands more abuse than leather without scuffing or tearing, and eliminates the hazard of shop-worn appearance

▲ **extended utility**
As a cover-stock for boxes that invite "refills" or secondary uses, its beauty overwhelms "sales resistance"

▲ **persuasive charm**
The eye that sees Keratol, and the hand that comes in contact with its richly embossed surface, cannot easily resist its decisive appeal to the possessive instincts of human nature.

for cases that quicken covetousness,

SPECIFY

GENUINE KERATOL GUARANTEED
REG. U.S. PATENT OFFICE "THE HIDELESS LEATHER"

Available in your own specified color scheme

—o—

In over 100 patterns

—o—

and many weights.

THE KERATOL COMPANY
380 SOUTH STREET
NEWARK, N. J.

THE COMPLETE BOX

You'll find on these pages a few samples of the different classifications of boxes made under Bicknell & Fuller standards.

We offer box users a service complete in every respect. Boxes of every type, size or shape manufactured according to your specifications. Immense facilities and up-to-do handle y them pro for the s addition

Take you & Fuller find con fine boxes

FANCY and NOVELTY SET UP BOXES

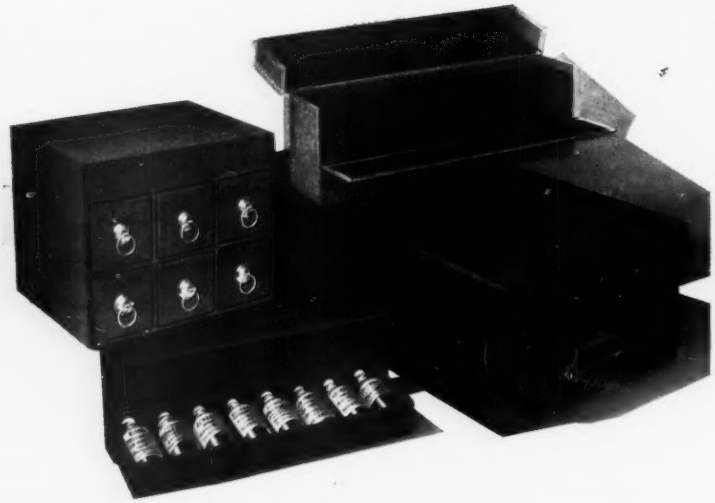
created for your particular purpose, satin or velvet lined, or plain. Special cut interiors.

FILING, SAMPLE and STORAGE BOXES

of cloth, rigidly constructed for long use.

PLAIN SET UP BOXES

for every conceivable purpose.



Bicknell & Fuller Pa

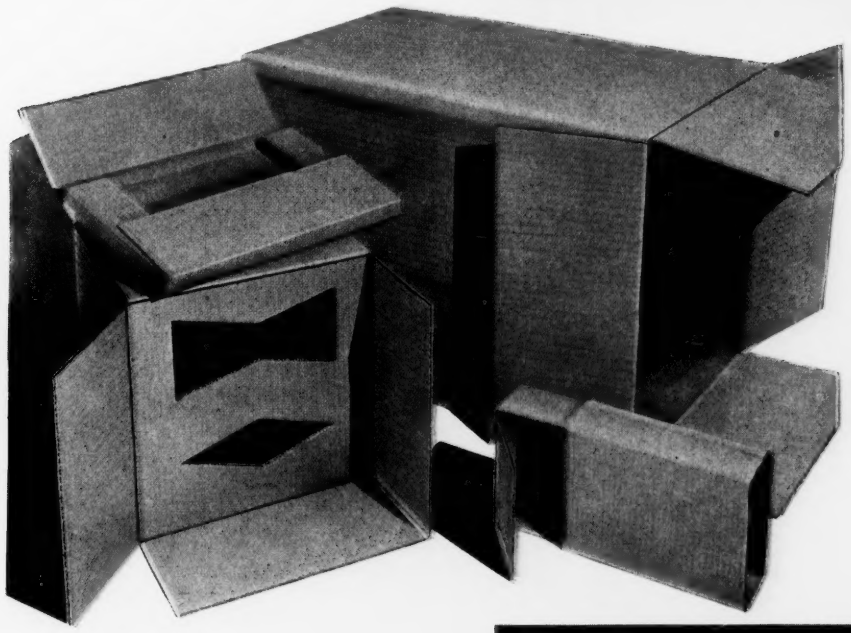
The Complete Box

42-50 CHARDON ST.

BOX SERVICE

up-to-date equipment enable us to handle your orders and dispatch them promptly. We are equipped for the smaller quantity orders in addition to long runs.

Take your box problems to Bicknell & Fuller—Where you are sure to find complete satisfaction—and fine boxes at most reasonable prices.



FOLDING BOXES and DISPLAYS

expertly designed and printed.

MAILING BOXES

and cardboard envelopes for photographs, books and special objects where care in mailing is necessary.

CORRUGATED SHIPPING CASES

and folders of Kraft or Jute with or without designed interior packing.

Paper Box Co.

Box Service

BOSTON, MASS.

The value of appearance is apparent in the modern trend of merchandising. A lithographed can by Burdick is pleasing to see and easy to handle. It portrays good printing in color or black and white, type easy to read, shows every detail of the artist's craft and tells an effective story that closes the sale and gets repeat orders. Since 1882 Burdick & Son, Inc., have specialized in the production of mechanically perfect lithographed tin cans, small and medium size.

This long and specialized experience and service is yours for the asking.

Burdick & Son, Inc.

ALBANY, N. Y.

A TRADE-MARK THAT MEANS SOMETHING!

A recent investigation, by a prominent advertising agency, discloses the fact that most people are unable to identify trade-marks and slogans with the firms which display them.

The investigators did not include the Dejonge Seal of Quality in their questionnaire. Nor were Dejonge customers conspicuous among those who were quizzed.

All of which probably explains why they got these results. For the Dejonge seal and trade-mark are known to buyers of fine fancy papers throughout the industry.

And, conversely, fine fancy papers are known to the discriminating by the Dejonge label which they bear.

It is profitable to bear both facts in mind when purchasing. Look for the Dejonge label!

LOUIS DEJONGE & CO.

NEW YORK CHICAGO

PHILADELPHIA

ECONOMIC MACHINERY COMPANY

Manufacturers of WORLD LABELERS

WORCESTER, MASS.

CHICAGO: Napoleon Savaria, 410 Monadnock Bldg. NEW YORK: 15 Park Row MONTREAL: Golden Gate Mfg. Co., Ltd.

PRODUCTS

Machines for Applying Paper Labels and Foils on Bottles, Jars, Tumblers, Cans and certain styles of Paper Boxes and Cartons.

Economic Machinery Company has been engaged exclusively in the manufacture of labeling machines for more than twenty-five years.

Superior mechanical construction combined with the best of materials and skilled workmanship makes World Labelers the most satisfactory and durable machines obtainable. A staff of factory-trained men give expert advice on labeling problems. Thousands of satisfied customers heartily endorse Economic service.

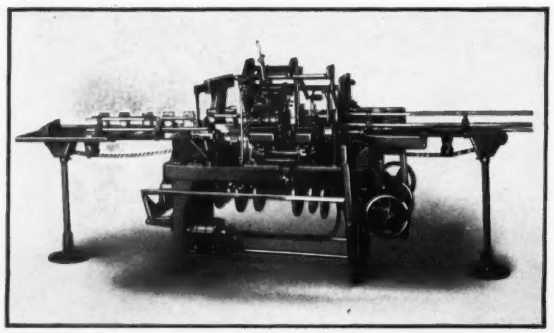
The Company manufactures a complete line of hand-fed and automatic machines to meet all labeling requirements successfully and economically.

Every World Labeler is guaranteed to give satisfaction.

Write for advice regarding your labels, and send labeled samples of your bottles or packages showing the way you want them labeled on the machine. Detailed information and quotation will be sent to you promptly.

Let World Labelers solve your labeling problems.

WORLD AUTOMATIC STRAIGHTAWAY LABELER



The *World Automatic Straightaway Labeler* is fully automatic and is made in two types, the *Single* for face labeling (as illustrated) and the *Double* labeler for applying front and back labels in one operation. It is particularly designed for labeling flat, round, oval or panel bottles and jars and other packages, and various sizes of bottles can be handled on the same machine.

Due to its simple, yet durable construction, operating parts are readily accessible and an experienced operator can easily and quickly change the labeling attachments from one size to another. The bottles are labeled in an upright position, automatically timed and centered and each label is correctly placed. The labels are gummed in the center as well as on the edges insuring uniform and smooth labeling. The conveyor can be made to individual requirements and connected to other automatic units.

All machines are equipped with the Alemite Push Type High Pressure Lubricating System.

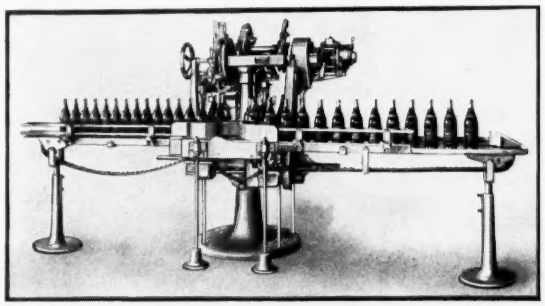
General specifications:—Motor, ½ H.P. Floor space required, 3 ft. x 10 ft. Height, 4½ ft. Shipping weight, 1600 lbs. single, 1850 lbs. double.

WORLD AUTOMATIC ROTARY LABELER

The *World Automatic Rotary Labeler*—the latest development—made both right and left hand, is an outstanding success on the high production required in large plants. The conveyor can be designed as desired and connected with other automatic units. Separate conveyors with independent motor drive are furnished as required.

The machine applies *body and neck labels and foil in one operation to pint, split or quart bottles.* A special machine is required when quart bottles are to be foiled. The Rotary labeler is made for labeling bottles or jars of various types from two-ounce to one-quart size, and several sizes can be labeled on the same machine.

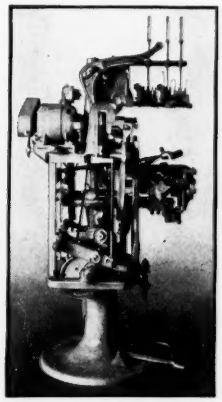
One of the many outstanding advantages of the World Automatic Rotary Labeler is that all parts are easily accessible. These machines are so well built that many of them are now in satisfactory operation after constant daily use over a period of many years. World Automatic Rotary Labeler positively reduces labeling costs to the minimum.



All machines are equipped with the Alemite Push Type High Pressure Lubricating System.

General specifications:—Motor, 1 H.P. Floor space occupied, 4 ft. x 12 ft. Height, 6 ft. Conveyor, 12 ft. overall. Shipping weight machine, 2200 lbs. Standard conveyor, 900 lbs.

IMPROVED WORLD LABELER



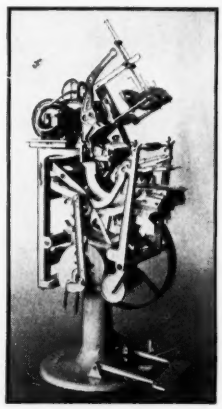
The *Improved World Labeler* is a most efficient and economical semi-automatic machine. It can be equipped to label small vials, one gallon bottles or jugs, or boxes and packages of various shapes and sizes. It is very generally used for applying *body and neck labels and foil in one operation,* to all types of beverage bottles. A positive *center* gumming device can be furnished when required. It applies labels all around a bottle or jar and is practically a universal labeling machine.

The *Model S Improved* machine has many new and exclusive mechanical features, recently developed. Among these improvements are the *silent* adjustable motor drive, the roller chain with cut sprockets for driving the gum roll, the redesigned follower lips which check the upward pressure of the labels when the pickers are in contact, swinging label follower rod enabling the operator to easily place the labels in the holder, quickly removable transfer roll and an improved type of gum box.

All machines are equipped with the Alemite Push Type High Pressure Lubricating System.

Roller truck, to make the machine readily portable, supplied at small extra cost.

General specifications:—Motor, ½ H.P. Floor space occupied, 3½ x 3½ ft. Height, 5½ ft. Shipping weight, 950 lbs.



JUNIOR WORLD LABELER

The *Junior World Labeler* is a hand-fed machine designed for labeling where *body labels only* are applied.

It satisfactorily labels bottles from one ounce to one quart capacity. Even in small plants where it is used as a part-time equipment it reduces labeling costs over hand labeling and does a neater, smoother job. The machine is so simple that practically no experience is required to operate it and with proper care, it will last for years.

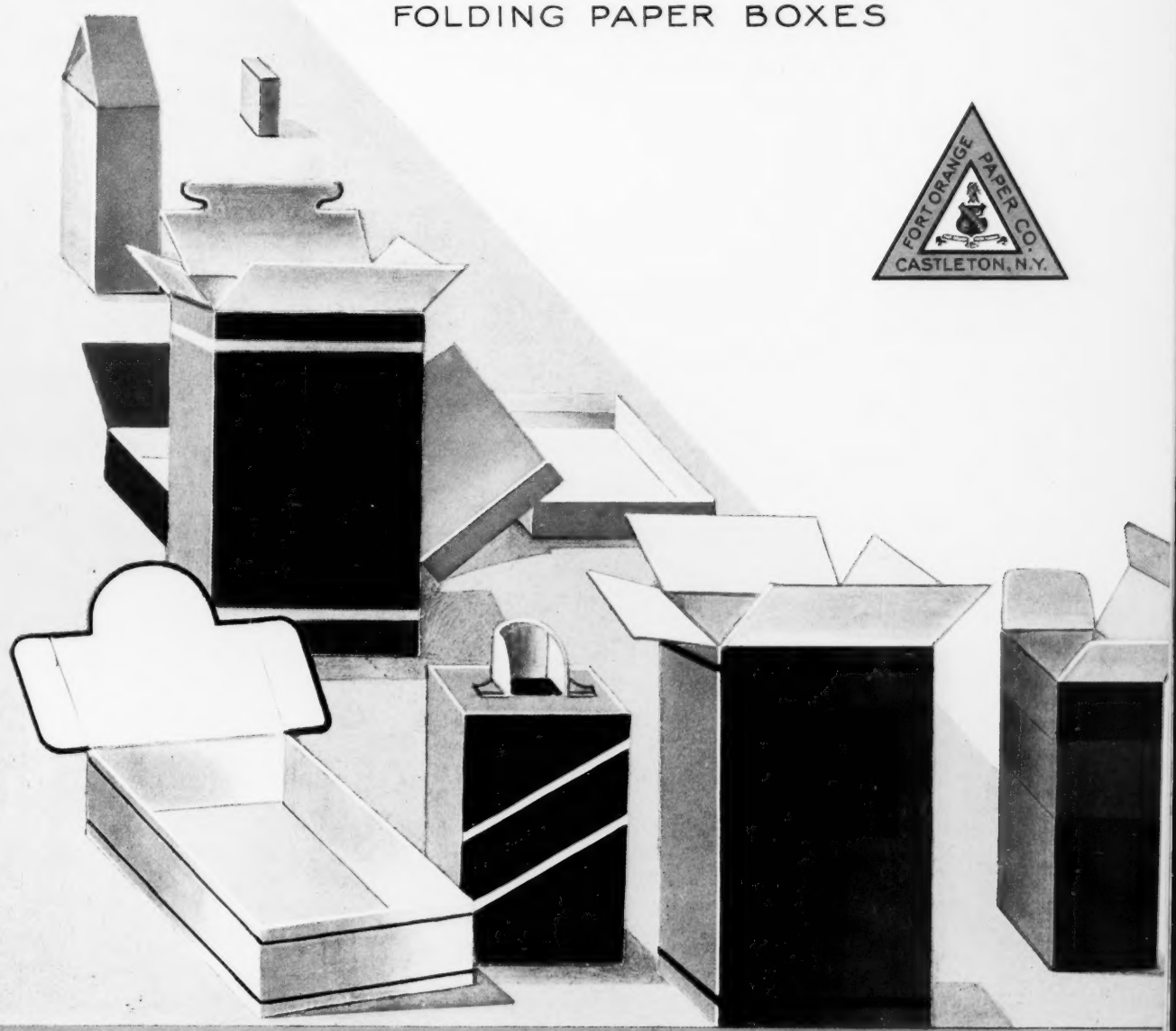
All machines are equipped with the Alemite Push Type High Pressure Lubricating System.

Roller truck, to make the machine readily portable, supplied at small extra cost.

General specifications:—Motor, ¼ H.P. Floor space required, 3 ft. x 3 ft. Height, 4½ ft. Shipping weight, 650 lbs.

FORT ORANGE PAPER CO.

ESTABLISHED 1858
CASTLETON-ON-HUDSON, N.Y.
FOLDING PAPER BOXES

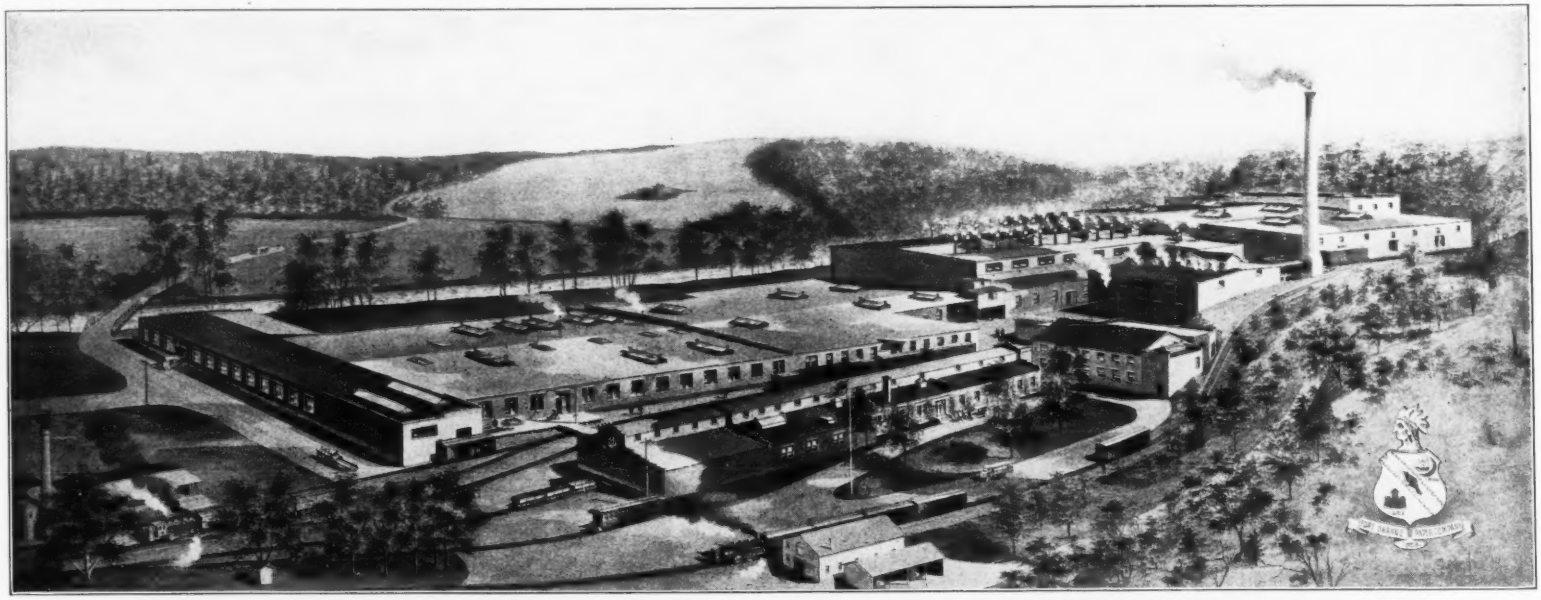


A NOVELTY YESTERDAY
A NECESSITY TODAY

We nave in our model plant hundreds of highly trained specialists working day and night with this great objective in view,

QUALITY AND SERVICE

THREE MILLIONS DAILY



FORT ORANGE PAPER COMPANY

CASTLETON ON HUDSON, NEW YORK

ONE of the three largest plants in the world devoted exclusively to the manufacture of Folding Paper Cartons, embracing the entire process of manufacture from the making of the board to the finished carton. Situated in the Capital District of New York State, with shipping facilities of the New York Central's noted "Water Level Route" or export the World over by the "Deeper Hudson."

Capacity 3 Millions Daily

Established 1858

YOU WOULD BE ENTHUSIASTIC TOO . . .

Ours is an enthusiasm born of the conspicuously successful art creations and the evident superiority of the masterpieces achieved by our engraving department.

. . . AND YOU CAN BE ENTHUSIASTIC ALSO IF YOU ARE A USER OF

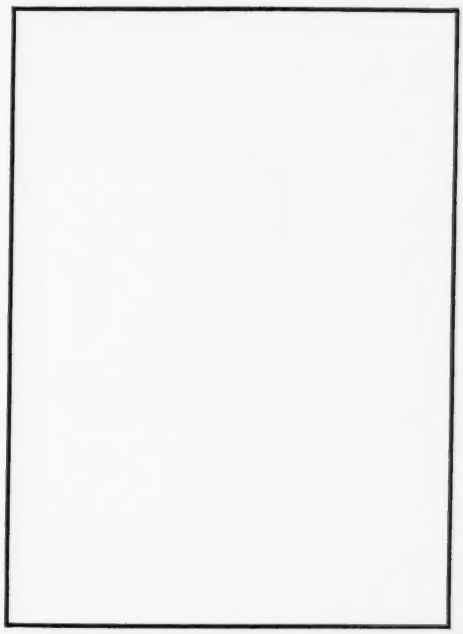
LABELS AND SEALS

IT is a great pleasure for us to be in a position to offer you the services of these outstanding men, of acknowledged genius, in engraving and art work.

We know you will be greatly impressed with the distinctiveness and the richness of what these masters will offer for your consideration.

We solicit your inquiry and you may be sure it will be a pleasure for us to furnish our suggestions without obligation or cost to you.

Our prices are normal and our product is superior.



ADDITIONAL SAMPLES, IN YOUR OWN LINE IF YOU PREFER, WILL BE FURNISHED UPON REQUEST.

DAVENPORT TAYLOR MFG. CO.

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LABELS AND SEALS OF PAPER - FOIL - METAL

EDWARD ERMOLD COMPANY

Automatic Labeling Machines of Quality

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Anton Petersen & Henius
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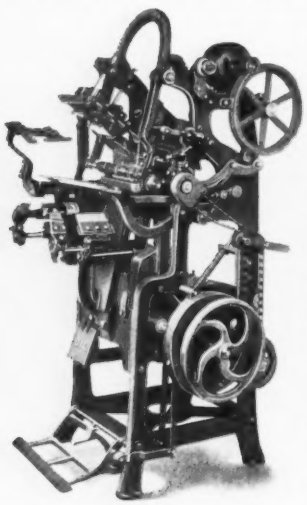
PARIS OFFICE AND PLANT: Société Française des Etiqueteuse Ermold—11 Place des Vosges, Paris, France

PRODUCTS

Improved New Ermold Labeler—Simplex Single Labeler—Single and Double Semi-Automatic Labeling Units and Automatic Multiple Labelers.

IMPROVED NEW ERMOLD LABELER



Is capable of applying one, two or three labels at one operation to any face of the package. It can also apply body and shoulder labels and tinfoil. It has a wide adjustability for labels from ¾" long to 10¼". May be applied, either part way or all the way around. The machine's operation require a ¼ H. P. Motor and has an output of 30 to 45 packages per minute. Containers of from 50 drops to one gallon capacity is the range of the machine.

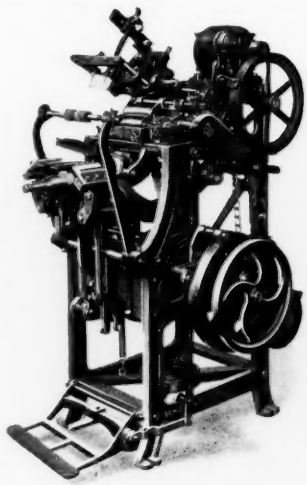
AUTOMATIC MULTIPLE LABELERS

These are the latest type of automatic machines built and are capable of high capacity at slow operating speeds. Made in 3 sizes: 4—wide with guaranteed capacity of 80 bottles per minute, 6—wide 120 bottles per minute, 8—wide 160 bottles per minute. All machines can be arranged for applying single or body labels only, or body and neck labels and tinfoil to any type of bottle. The automatic cutout clutch, an exclusive Ermold feature on these machines, instantly operates to stop the machine when undue strain on moving parts is caused by a defective bottle, thus eliminating excess breakage. The machines make 20 revolutions per minute to give high capacities. A speed controller regulates speed.

ERMOLD FOIL REMOVER

The latest addition to the Ermold line removes tinfoil from returned empties before the bottle is introduced into the soaker so that the bottle may receive from his cleaning equipment a clean sanitary package. The bottle is placed on a rest moved on to a guide pin, which at the same time acts as a stopper to prevent any of the removed foil from entering the bottle. The bottle is pushed into a revolving head which removed the foil. The parts which remove the foil are from hardened material, making them wear resisting—¼ H. P. Motor.

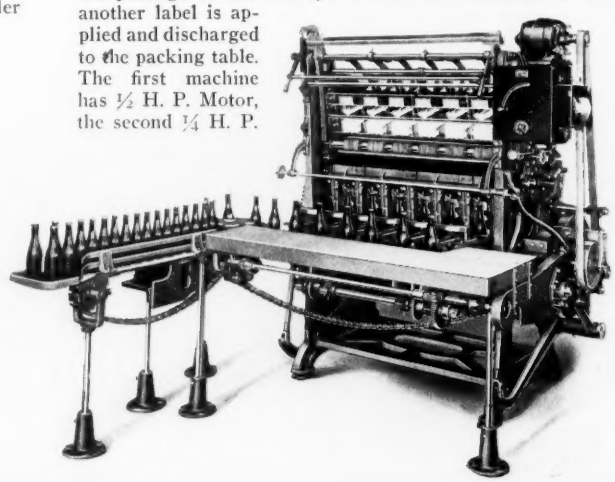
SIMPLEX SINGLE LABELER



Similar to the Improved New Ermold Type, it was built for use in small plants or as an auxiliary in larger plants and is limited to a label up to 5" in height and half way around the container. It has a capacity up to 45 packages per minute—uses a ¼ H. P. Motor and handles single labels on either flat or round packages.

SINGLE AND DOUBLE SEMI-AUTOMATIC LABELING UNITS

These consist of our Improved New Ermold Type Machine with an automatic discharge attachment exclusively Ermolds', and a belt conveyor driven from a labeling machine using a ½ H. P. Motor. Saves 30 to 33% over the old hand machines and 50% of operators' labor since the machine glues the label and places it on the packages and then discharges the package to a moving conveyor, causing an increase in speed and efficiency. The double unit consists of two of the Improved New Ermold Type Machines, both equipped with automatic discharge attachment and one conveyor. Used in plants where front and back labels are applied, the first machines applies the front label, discharges the package to the conveyor to the second machine where another label is applied and discharged to the packing table. The first machine has ½ H. P. Motor, the second ¼ H. P.



A NEW MATERIAL FOR NEW CONTAINERS

LUMARITH

(TRADE MARK REGISTERED U. S. PAT. OFFICE)

A NEW beauty tuned into the beauty seeking tempo of today. Smart=Unique=Novel=Beautiful=Colorful=and expressing to a full degree a superlative quality. This is what LUMARITH== the new molding material==brings to the user of containers.

Have you a long established color scheme? LUMARITH will carry it to its ultimate quality effect. Your various products and their several sized and shaped containers==is there a color or form motif running through all of them? LUMARITH will enhance the salient feature.

LUMARITH==the most beautiful of all molding materials== will retain for you all those valuable old advantages and add a definite new touch to stimulate new business.

What is LUMARITH?

LUMARITH, the cellulose acetate quality molding material, is a modern product marking the successful culmination of years of research. LUMARITH has an unlimited range of colors—transparent, translucent and opaque.

But LUMARITH offers more than mere richness of color—unusual color effects are now possible—effects which lift products molded of LUMARITH a step higher than "beautiful and colorful."

Artistry of design can be faithfully produced in LUMARITH in any quantity with no loss of detail even down to the millionth article. LUMARITH is tasteless, odorless, sanitary, light in weight and extremely strong and resilient. LUMARITH is substantially non-inflammable and possesses a beauty only previously found in materials many, many times more costly. It perfectly simulates rare old jade, gleaming ebony, beautiful onyx and antique ivory. In addition to this, new effects, new combinations, new forms, now, for the first time, open dazzling opportunities for unique containers. In fact there is hardly a color used that cannot be faithfully reproduced in LUMARITH—including all the delicate pastel shades.

LUMARITH

(TRADE MARK REGISTERED U. S. PAT. OFFICE)

THE QUALITY MOLDING MATERIAL

LUMARITH CONTAINERS

LUMARITH is the ideal molding material for

De Luxe Containers
Gift Boxes
Watch Boxes
Safety Razor Boxes
Compacts
Cosmetic Containers
Jewelry Boxes
Perfume Bottle Containers

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PACKOMATIC MACHINERY

J. L. FERGUSON COMPANY

JOLIET, ILLINOIS

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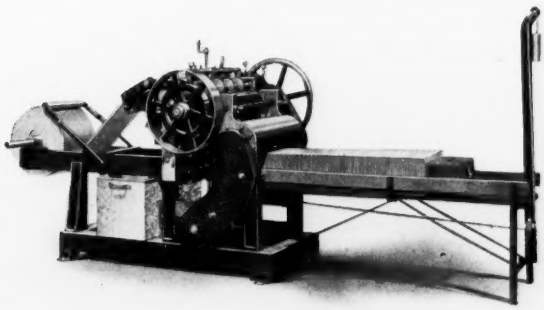
Manufacturers and Designers of Packomatic Packaging Machinery

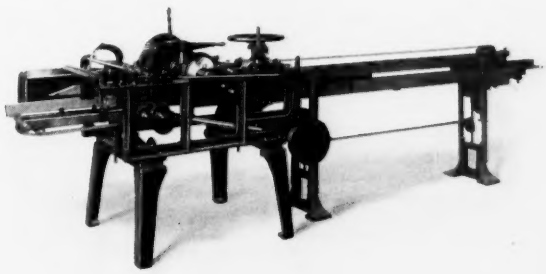
Carton Forming Machines
Carton Sealing Machines
Weighing Machines & Feeders
Cartoning Machines
Labeling Machines
Boxing Machines
Wax Wrapping Machines
Automatic Lining Machines
Container Sealing Machines

Special Machinery for Packaging Purposes



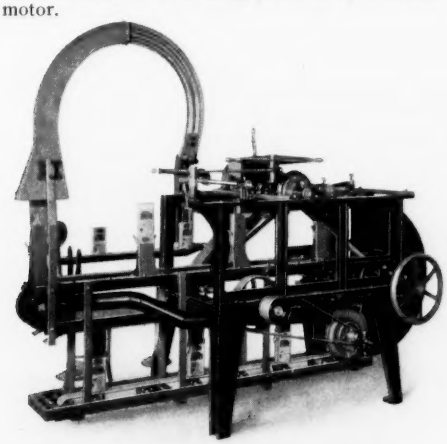
PACKOMATIC CARTON FORMING MACHINE

A carton forming or Shell making machine with a speed of 125 to 200 shells per minute, affecting a substantial saving. This machine is easily operated. The chip board is fed from the roll, cut, scored, folded and glued, and the shells delivered in a knocked-down form. Requires floor space of only 4 ft. 6 in. wide x 14 ft. long, powered by 3 Horse Power drive motor.



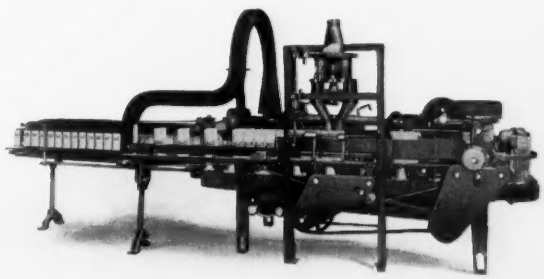
PACKOMATIC TOP SEALING MACHINE

Seals top flaps of filled cartons. Where each carton contains a lining its top is interfolded with the carton flaps. Package limits ¾ x 1⅞ x 3 to 3 x 5 x 8. Speed limit up to 60 per minute, requires 1 Horse Power motor. Floor space 4 ft. 2 in. wide x 14 ft. 6 in. long.



PACKOMATIC BOTTOM SEALING MACHINE

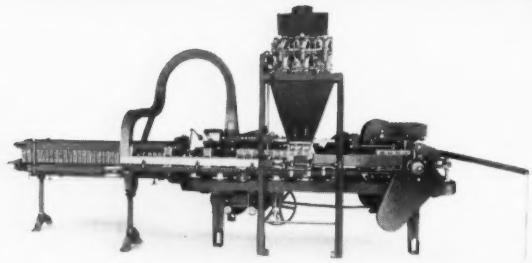
Sets up standard knock-down or "glue-end" carton ready for the lining or filling process. Handles cartons Minimum size ¾ x 1¼ x 2⅜—Maximum 3¾ x 6 x 9. Range of speed from 20 to 40 per minute. Only one operator required, Powered by 2 Horse Power drive motor. Requires floor space of 3 ft. 3 in. wide x 10 ft. 2 in. long.



PACKOMATIC COMBINED BOTTOM AND TOP CARTON SEALER

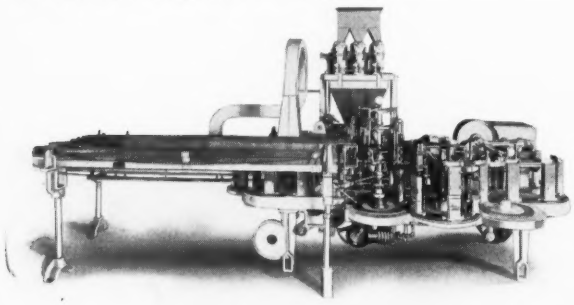
A combination bottom and top sealing unit, furnished with or without Automatic Carton Feeding device. The Volumetric Filler is guaranteed to produce commercially accurate weights, when product remains uniform in specific gravity, and up to 60 packages per minute may be produced with this unit. The machine is easily adjustable and is especially adaptable for such products as salt, soap powder, beans, tapioca, peas, etc. Requires floor space of 4 ft. 8 in. x 16 ft. 6 in.

A Packomatic Engineer Will Help You With Your Packaging Problems



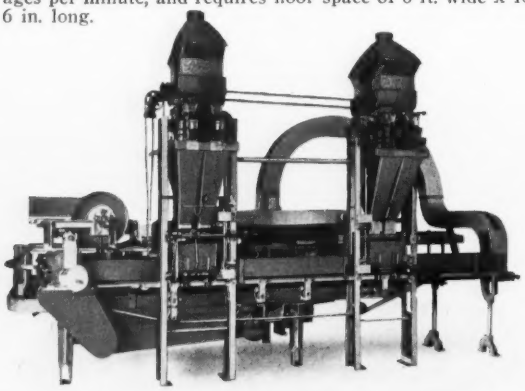
PACKOMATIC CARTON SEALER WITH AUTOMATIC NET WEIGHER

Our regular bottom and top carton sealer equipped with Packomatic six unit net weight type scales. For packaging semi-free flowing products. The cartons control the tripping device and three are filled simultaneously. Commercially accurate weights are guaranteed. Speed up to 60 or more per minute, powered by 2 H. P. motor, and requires floor space of 4 ft. 6 in. wide by 16 ft. 6 in. long.



PACKOMATIC CARTON SEALER WITH AUTOMATIC CARTON FEED AND NET WEIGHT SCALES

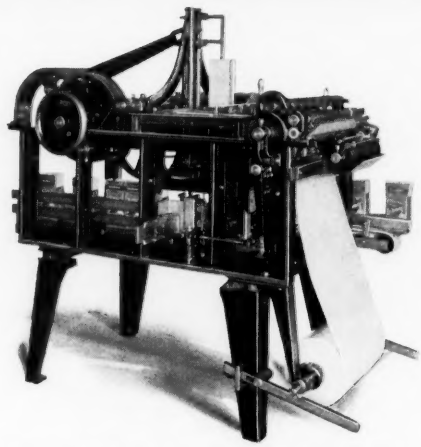
This bottom and top sealer features the automatic carton feeding device. The magazine has a capacity of about fifteen hundred cartons. One by one they are released, opened, and placed onto forms for sealing of flaps. It is not necessary to use cartons of special design. Speed of 60 or more packages per minute, and requires floor space of 6 ft. wide x 16 ft. 6 in. long.



PACKOMATIC CARTON SEALING MACHINE WITH TWO SETS OF AUTOMATIC SCALES

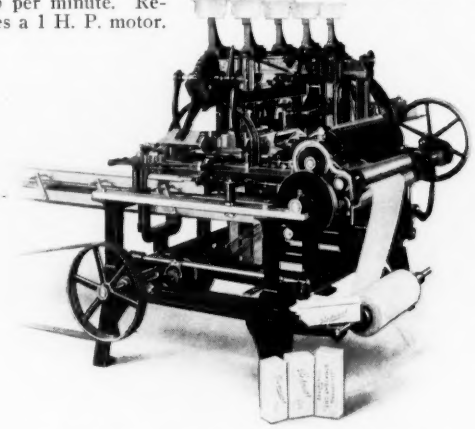
This machine is equipped with a double set of four unit scales, between which premiums may be inserted into the cartons. An automatic control device allows the product to flow only when cartons are in place; two cartons simultaneous partially fill at each weigher.

This unit was designed for use where large irregular size premiums are inserted. Requires floor space of 4 ft. 6 in. wide x 16 ft. 6 in. long.



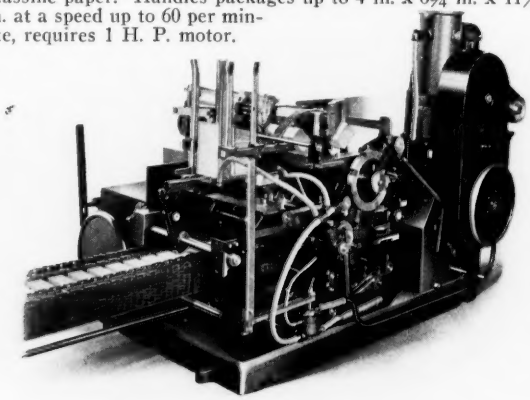
PACKOMATIC LINING MACHINE

A machine designed to make sealed bags from roll of glassine, parchment or plain paper and inserts bag in square or rectangular cartons or cans. It will handle packages 1 in. x 2 in. x 3 in. and up to 4 in. x 5 in. x 7 in. at a speed of 25 to 35 per minute. Requires a 1 H. P. motor.



PACKOMATIC WAX WRAPPING MACHINE

This machine hermetically (heat) seals sulphite or waxed glassine paper. Handles packages up to 4 in. x 6¾ in. x 11½ in. at a speed up to 60 per minute, requires 1 H. P. motor.



PACKOMATIC CARTONING MACHINE

A machine which feeds and opens cartons, feeds and folds sheets of paper or corrugated board, and inserts with article, then seals or tucks end flaps.

Handles packages up to 4¾ in. x 6¾ in. x 10 in. Speed up to 60 per minute.

PACKOMATIC (SCOTT) NET WEIGHER

A semi-automatic gravity weighing machine which operates without power on all free-flowing materials. A speed of 30 weighings per minute is accomplished by the rapid tripping, discharging and righting, which requires only five-sixteenths of a second.

This weigher is equipped with single lever and agate bearings, also is extremely simple in design.

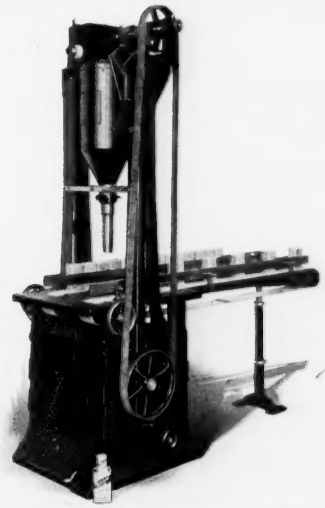
The net cumulative variation in weight is guaranteed not to exceed 2 ounces on every 100 weighings.

This machine is built in 3 models—capacities ¾ to 8 oz., ½ to 3 lbs., 1 to 5 lbs., the size determined by the range of weights to be handled.

PACKOMATIC (SCOTT) NET WEIGHER WITH F. H. FEEDER

The F. H. type feeder preserves fragile materials, such as tea or small crackers, in unbroken condition and will not separate mixtures such as whole pickling spice.

Four other type feeders are furnished, each designed for handling particular products, and any one may be used with this net weigher. Only ⅛ H. P. motor is required.



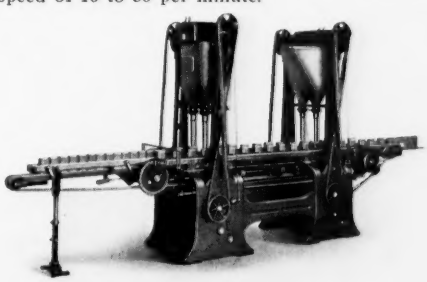
PACKOMATIC (BOND) GROSS WEIGHER MODEL MG

Equipped with special deaerating auger feeders for powdered materials. These feeders make operation practically dustless, insure sanitary working conditions and reduce waste to a minimum.

The Model MG may be optionally equipped: (a) as a weigher, for special accuracy; (b) as a packer, for snug containers or those having reduced filling openings; (c) as a volume filler, for speed. Gravity gates supplied for free-flowing products.

The Model MH is similar but consists of two stations, both of which may be used as individual weighers or fillers, or one station used as a bulk filler and the second as a check weigher.

Package limits ¾ in. x 1 in. x 1 in., up to 5 in. x 5 in. x 14 in., speed of 10 to 30 per minute.



PACKOMATIC (BOND) GROSS WEIGHER MODEL MN TWIN TANDEM AUTOMATIC

This model MN is fully automatic, the two stations on one end operate as four pivot agate bearing scales, and the other two as volumetric fillers. If desired, all four stations are equipped as weighers.

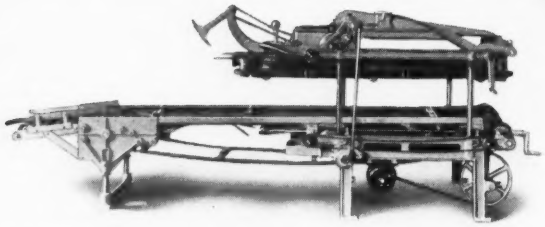
When agitation is needed, one or more of five distinct types of mechanical agitator is furnished, also shaker or plunger is supplied. All stations are electrically controlled.

These machines are easy to operate and very flexible for changing from one size to another. Empty cans or cartons are automatically divided into two lines and when filled, are again assembled into one line.

Produces accurate weights at 50 to 70 per minute speed. Package limits ¾ in. x 1 in. x 1 in., up to 3⅞ in. x 5 in. x 10 in.

Details of Any Packomatic Equipment Will Gladly Be Given Upon Request

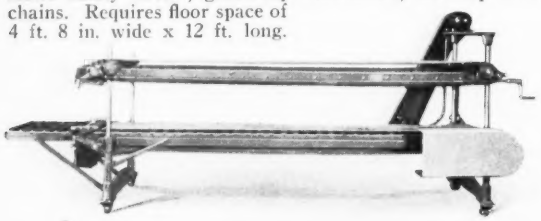
FERGUSON NATIONAL



PACKOMATIC MODEL "D" AUTOMATIC CONTAINER SEALER WITHOUT DRYER

The filled containers are received from conveyor by a positive automatic feeding device, bottom outer flaps are opened, top inner flaps are closed, adhesive spread on top and bottom outer flaps, and flaps again folded. Cases are then discharged into compression unit.

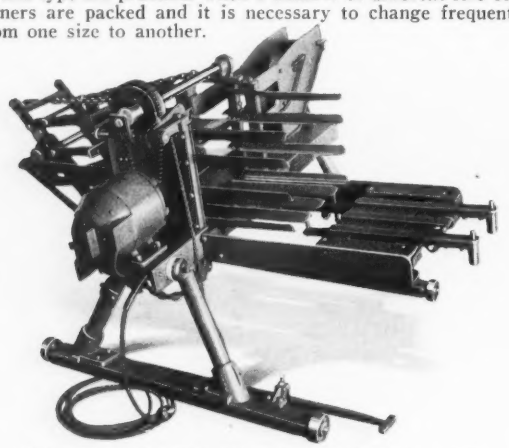
By simple, rapid adjustments, this machine handles a large variety of different size cases. It is equipped with an automatic safety device, glue skip attachment, and top carrier chains. Requires floor space of 4 ft. 8 in. wide x 12 ft. long.



PACKOMATIC HAND GLUE CONTAINER SEALER, PORTABLE TYPE

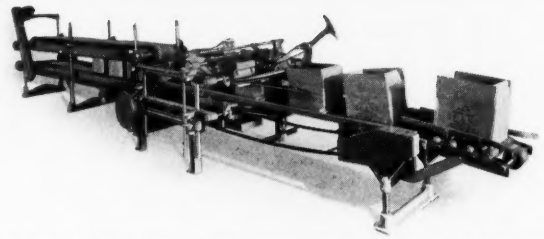
With this type machine the adhesive is applied by hand and it is easily adjustable to handle large or small cases.

Both the upper and lower sections are equipped with ball-bearing steel rollers and heavy rubber belts, both belts are driven. The casters are ball-bearing, swivel type. Machines of this type are practical when a number of different size containers are packed and it is necessary to change frequently from one size to another.



PACKOMATIC KYLER MODEL "P" BOXER, MOTOR DRIVEN

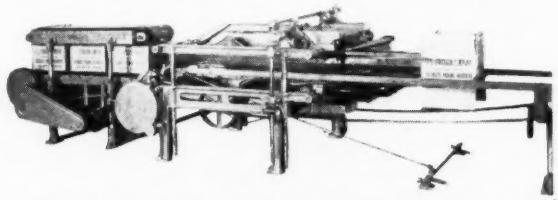
The Kyler Boxers have been in use for many years by leading Canners. They are unique in design, having reversible feed chutes and separating blades, and rigid one piece frame. The patented ball bearing carrier allows the cases to move without friction and tilts at 45 degrees when discharging filled cases to conveyor or table.



PACKOMATIC MODEL "D" AUTOMATIC CONTAINER SEALER WITH 16 FOOT DRYER

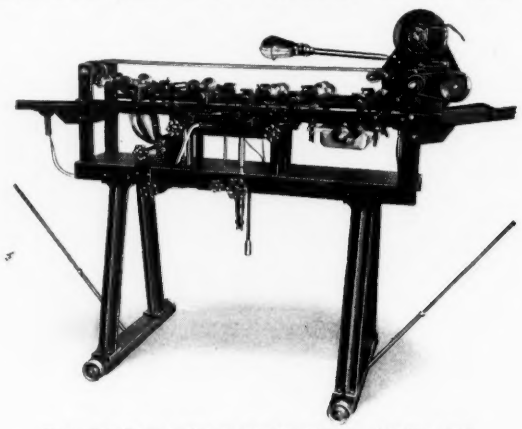
The Automatic power feeding device is clearly illustrated in this view, also the top and bottom glue roll drives, and the easy access to all glue pots. The glue roll and dryer belt drive gears are of hardened steel, all bearings are bushed with bronze, sprockets and gears are cut, and Diamond roller chain is used.

Capacity of machine depends upon length of dryer furnished. Up to 30 or more cases per minute can be handled with a single unit.



PACKOMATIC MODEL "G" SEMI-AUTOMATIC CONTAINER SEALER WITH 4-FOOT DRYER

This machine was designed for smaller output. The automatic feed and bottom flap opener is eliminated and the operator starts machine by means of foot trip, thus the machine operates at will of the packer. A four foot dryer is regular equipment with this type gluer and will handle the output of one packer or up to 150 average cases per hour.



PACKOMATIC KYLER LABELER

This Labeler is entirely new in principle and design and fills the requirements for more efficiency and greater speed.

It is equipped with a circulating lap-paste system, simple in design; the magnetic label feed is positive and the changing of labels can rapidly be done; the electric control feature eliminates the usual accumulation of paste and waste of labels.

Packomatic Engineers Will Consult With You Regarding Any Special Packaging Problem at Any Time Without Obligation

LABEL IDEA?

Thousands of labels have been created by us for every kind of package and product . . . many more thousands are being created and will be created by us. The reason for this labeling confidence is very clear. IDEAS — creative thought combined with sound merchandising, advertising comprehension and packaging experience —and an organization equipped to take care of your entire problem

IT'S IN THE BAG

of labels, box coverings, display cards, circulars, plates, engraving and art work,— for affiliated with the Foxon Company is the Advertisers Engraving Company, creators of fine printing plates. If you have a package decoration problem, it's in the bag if you consult . . . . .

The Foxon Company

LABELS ··· BANDS ··· WRAPS ··· CIRCULARS

AFFILIATED WITH ADVERTISERS ENGRAVING COMPANY

227 WEST PARK STREET, PROVIDENCE, RHODE ISLAND

THE PACKAGING CATALOG GIVES

+ 10 REASONS

FOR USING H & D CORRUGATED FIBRE SHIPPING BOXES » » »

LOW COST — Made from inexpensive raw materials, the actual box cost is low.

SAVE WEIGHT — Tare weights are low — saving freight on shipments and supplies of boxes.

GREATER CONVENIENCE — No nails — no splinters — easy handling in shipping and storage.

SAVE STORAGE SPACE — Delivered flat, corrugated containers are stored in minimum space.

THEFT MINIMIZED — When properly sealed, any evidence of tampering is at once evident.

EASY CLOSING — Automatic sealing machines save labor costs.

FREE ADVERTISING — High grade colored printing of your name or trade mark make these boxes traveling bill boards.

SANITARY — Every shipping box is new and used only once.

ACCURATE — Shrinking, warping and swelling are unknown.

EASY STACKING — With their combination of light weight and rigid walls, H & D corrugated boxes can be stacked high.

ANY SIZE . . . ANY QUANTITY . . . ANY REQUIREMENT

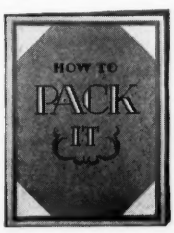
The 50 H & D Package Engineers have designed thousands of special applications of corrugated fibre shipping boxes for bottled goods, canned foods, dairy products, electrical specialties, confections, dry goods, clothing — the whole range of manufactured commodities. Get their help on your shipping box problems.

THE HINDE & DAUCH PAPER COMPANY, 190 Decatur Street, Sandusky, Ohio

Western Address: Kansas City Fibre Box Company, Packers Station, Kansas City, Kansas. *Canadian Address:* The Hinde & Dauch Paper Co. of Canada, Ltd., King Street Subway and Hanna Avenue, Toronto

Send for this free Book!

H&D HINDE & DAUCH *corrugated fibre* SHIPPING BOXES



"How to Pack It" describes in detail H & D Package Engineering Service. Write for a free copy, telling us what you pack.

SPRING GREEN

SERIES No. 12

One of the five attractive new shades in COLLINS VELUMET BOX PAPERS—"The Serviceable Line of American Papers."

VELUMETS are made in seven distinctive embossings, each in nine modern colors for today's packaging.

Let us send you sample books of the VELUMETS—and the complete Line of COLLINS BOX PAPERS—suitable for every purpose.

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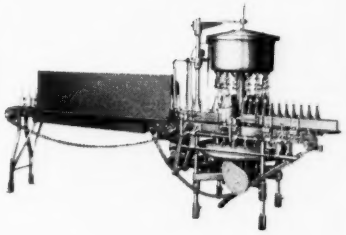
PACIFIC COAST:
Zellerbach
Paper Company

HALLER

AUTOMATIC FILLING MACHINES

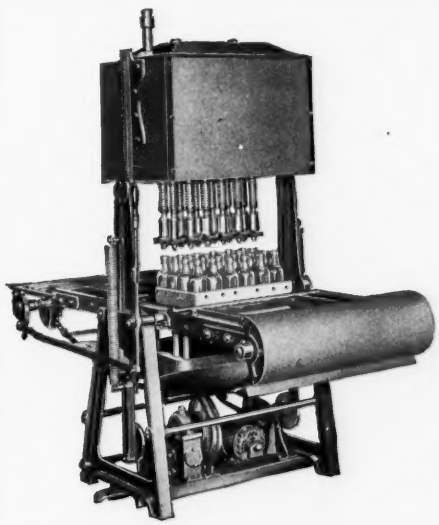


Designed to fill any size or shape of container up to one gallon capacity, depending on kind, number and spacing of filling tubes. ½ H.P. Length 6 ft., 7 in. Width 3 ft., 6 inch. Height 7 ft.

HALLER SPECIAL GANG-FILLER

HALLER MODEL R.

6]Tube Straight Line Filling Machine fills six 5-gallon bottles a minute. Furnished for either hand or hydraulic operation. Height 7 ft. 2 in. Length 10 ft. Width 30 inches.



HALLER MODEL H. E. & H. B.

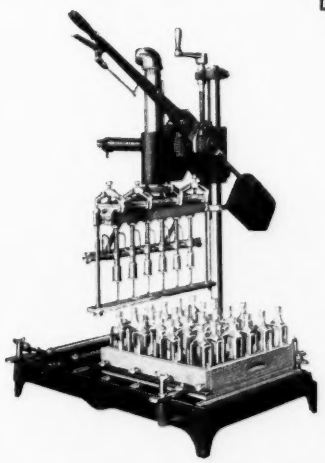
14-Tube and 18-Tube Laborless Automatic High-Speed Rotary filling machine. Absolutely sanitary, easy to clean, fills uniformly, quickly adjusted to any size bottle. Speed 55 to 140 containers per minute. Length 12 feet. Width 4¼ feet. Height 6–10 feet. ½ H.P.

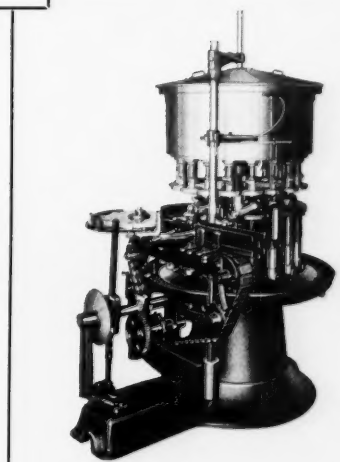
18 Tube Automatic High-speed Rotary Can Filling Machine, for soups, saucing baked Beans, Spaghetti, etc., into cans from 2 in. to 3¾ in. diameter. Special discharge disc feeds directly to Double seamers. Empty can conveyor connects direct to intake feed. Sanitary; does not inject air with products filled. 120–160 cans per minute. Length 4 ft. Width 5 ft. Height 6 ft.

HALLER MODEL H-S.

5, 6 and 9 Tube Bench or Table Type Filling Machine. Can be dismantled for thorough cleaning and reassembled with no other tools than human hands. 29½ in. wide, 36½ in. long, 56 in. high.

HALLER MODEL N.





Haller Automatic filling machines are built for long life. Their cost of maintenance is very low since repairs are limited to natural wear and no experienced help is needed for their operation. Besides the particular advantages of each machine, Haller filling machines are widely known for their longevity and service.

We have other machines.

Write us about your filling problems.

HORIX MANUFACTURING CO.

CORLISS STATION PITTSBURG, PA.

KVP

GENUINE VEGETABLE PARCHMENT & WAXED PAPER

KVP Papers go to the four corners of the earth protecting delicate foods from moisture, dryness, odors and contamination of every kind.

Manufactured under the strictest supervision and with just one idea in mind, that of putting your product in the hands of the consumer in the same fresh and wholesome condition that it left your plant.

Wherever there is a need for a clean, strong, high grade sheet that protects and reflects quality, call on the KVP Co.

Feel free to use our modern, thoroughly equipped research laboratory in solving your packaging problems.

KALAMAZOO VEGETABLE PARCHMENT COMPANY
KALAMAZOO, MICHIGAN

2015

THE LIQUID CARBONIC CORPORATION

Manufacturers of

O. & J.
Automatic Labeling Machine

National
Semi-Automatic Labeling Machine

General Office: 3100 S. Kedzie Ave.
CHICAGO, ILLINOIS

Labeling Machine Division: 60 Ellsworth St., Worcester, Mass.

Branch Offices

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PHILADELPHIA, PENNSYLVANIA
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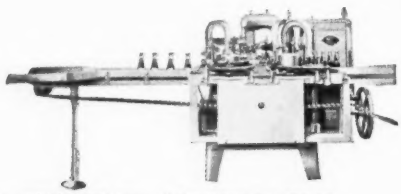
ST. LOUIS, MISSOURI

THE COMPANY

The Liquid Carbonic Corporation founded in 1888 is the world's largest manufacturer of Bottlers Machinery and Carbonic Gas. It recently acquired the O. & J. Machine Company, Worcester, Mass., and the National Labeling Machine Company, Long Island City. The products of both these companies are now being manufactured by the O. & J. Labeling Machine Company which is being operated as a subsidiary of the "Liquid" at Worcester, Mass.

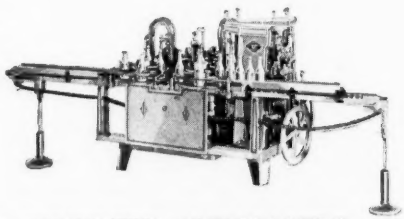
PRODUCTS



O. & J. "SINGLE" AUTOMATIC ROTARY LABELER

The "Single" O. & J. Labeler is a rotary type machine and is completely automatic. It has a capacity of 80 containers per minute or 3200 dozen containers per 8-hour day.

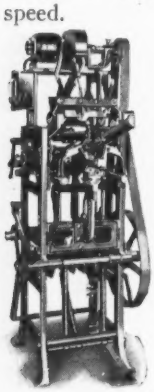
There are eight heads and top grips for receiving and holding the bottles. By reason of these eight heads the machine operates at a comparatively slow speed.



O. & J. "DUPLEX" AUTOMATIC ROTARY LABELER

The Duplex Labeler is a large capacity rotary type machine, completely automatic. It will handle 120 containers per minute of 4800 dozen containers per 8-hour day.

The operation of this machine is similar to that of the "Single" machine described above, the extra capacity being obtained by having ten heads instead of eight on the turntable, and two points at which labels are affixed to the containers.

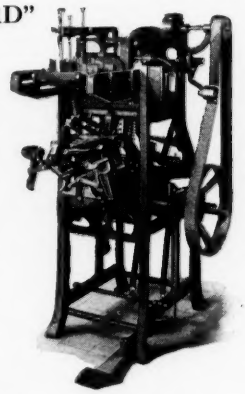


NATIONAL "MIDGET" LABELER

This machine is a smaller and simpler model of the "Standard" type labeler also shown on this page. It will affix a single label on anything from a ½-oz. vial up to a quart bottle, provided the labels do not go more than half way around the bottle.

This machine has a capacity of 40 containers per minute or 1600 dozen containers per 8-hour day.

NATIONAL "STANDARD" LABELER



This is a hand fed or semi-automatic labeling machine. With it practically any size bottle may be labeled, with either body or neck labels or both.

When equipped with a foiling attachment, foil may also be applied.

This machine has a capacity of 40 containers per minute or 1600 dozen containers per 8-hour day.

SERVICE RENDERED BY REPRESENTATIVES

The labeling machine division of the "Liquid" can help you increase the efficiency of your labeling operations—by speeding up production—by more accurate labeling (especially on difficult labeling jobs) by economizing through fewer machines and less manpower.

One of our qualified labeling machine representatives will be glad to call and discuss your labeling problem. He has facts and figures on comparative labeling costs, savings in time, money and labor on various labeling operations.

Write for Catalog

We will be glad to send you on receipt of a request on your letter head, a copy of our booklet, "Labeling Machines." It contains a vast amount of valuable information on labeling equipment.

STYLE SELLS!

The Successful Package of Today must have "STYLE-APPEAL," merchandising authorities agree.

MODE Group Box Coverings of Style-Appeal, by Middlesex, give your package that Smart, Modern look that attracts today's buying public.

MODE Papers are notable for their Authentically Fashionable Colors, Exquisite, Modern Designs and Fundamental Good Taste.

NEW — Gold, Silver and GALA-MODE lines are now carried also in COVER weight (.011″ thick), for catalog covers tying in with your box wrap, and a wide variety of mailing and display pieces, small folding containers, etc.

SILVER-MODE

SILVER-MODE COVER

GOLDEN-MODE

VANI-MODE

CAMEO-MODE

GALA-MODE

GALA-MODE COVER

Full Size Working Samples by Return Mail

MIDDLESEX PRODUCTS CO.

A Modern Mill

38 Chauncy St.
Boston, Mass.

308 W. Washington
Chicago, Ill.

Middlesex ★ Coated Papers

JUST MAIL THIS COUPON FOR SAMPLES

Middlesex Products Co., 38 Chauncy St., Boston, Mass.
Gentlemen:
Please put our name on your mailing list, for future mailings of MODE papers ☐
Please mail working samples of .....

PC 31 Signed.....
Company.....
Address.....

DUREZ FOR PACKAGING

GENERAL PLASTICS, INCORPORATED

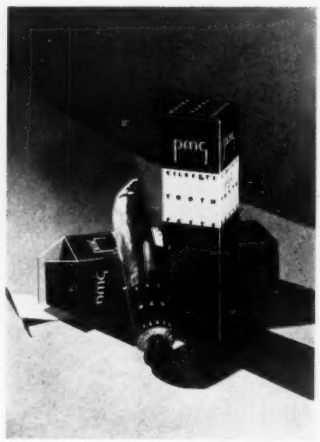
Sales Offices: New York, 250 Park Avenue
Chicago, 9 South Clinton Street
Los Angeles San Francisco

Plant and Executive Offices:
Walck Road, North Tonawanda, New York

European Sales Office:
Gaston E. Marbaix, Adelaide House,
King William Street, London, E. C. 4, England

Limitations of the average closures

The limitations of the average closures are well known to the manufacturer who uses them. There is difficulty in accurate threading; the cap binds on resealing; destructive agents may affect the inside of the seal; colors are restricted; and production machinery is frequently expensive. Because of these defects, many manufacturers have turned to Durez molded closures for capping collapsible tubes, bottles, jars, and boxes, for display cases, vanity sets, powder boxes—in fact, for virtually every type of container.



Durez molding compound

Durez molding compound is a synthetic phenol condensation product to which various filling materials—chiefly wood flour and asbestos—are added for strength, appearance, and molding qualities. Durez is molded or formed under heat and pressure, the manufacturers supplying material in a powdered form to those equipped to make it into finished closures.

Mechanical and physical advantages of Durez closures

Durez closures are strong, tough, and hard, yet light in weight. They are not affected by acids, alkalines or other destructive agents, making cork inserts unnecessary. They do not rust or corrode in contact with certain pharmaceutical products. Nor do they discolor the contents of the container. One of the outstanding advantages in connection with their use on collapsible tubes is the fact that Durez closures do not leak or permit the contents to cake in the mouth of the tube, usually a considerable annoyance.

Threading

Durez closures are easily gripped, and screw down unusually tight. Yet they are readily released, and will not bind. The answer lies in the threading. Durez threads are stronger than alloy metals because they are molded, not cut. Any size, or kind, of thread may be used—whether inside or outside, fine or bayonet. Accuracy is assured within accepted commercial limits, and uniformity established whether you make ten or a million closures.

Beautiful finish and colors

The lustrous surface of Durez is a permanent natural finish that requires no polishing, buffing or tooling. Many manufacturers, awake to the popular appeal of color, have found the new Durez colors the most satisfactory among molded compounds.

Durez is available in twenty-two solid colors, including reds, greens, orange, several blues, old ivory, magenta, purple, black, brown, etc. Special colors to give a wide range of mottled and striated effects can be secured by the blending of standard colors.

Some nationally known users of Durez

The concerns which have adopted Durez molded closures are numbered among the largest organizations in the pharmaceutical and perfumery industries. They include E. R. Squibb & Sons, Auto-Strop Razor, Johnson & Johnson, Pinaud, Palmolive, Parke-Davis, Barbasol, Fitch, Astringosol, Zonite, Pen-a-tox, Lambert Pharmacal Company, Nelson Baker & Company, Colgate, McKesson-Robbins, Coty, Lehn & Fink, and many others.

Adapting Durez to your use

Those who wish to investigate the possibilities of Durez will find the research facilities of the General Plastics Laboratory of great practical value. A staff of specialists stands ready to show you how Durez will improve your closures.

DUREZ

DUREZ SELECTED FOR NINETY-FIVE PER CENT OF ALL MOLDED CLOSURES

DUREZ FOR PACKAGING

GENERAL PLASTICS, INCORPORATED

Sales Offices: NEW YORK, 250 Park Avenue
CHICAGO, 9 South Clinton Street
LOS ANGELES SAN FRANCISCO

Plant and Executive Offices:
Walck Road, North Tonawanda, New York

European Sales Office:
GASTON E. MARBAIX, Adelaide House,
King William Street, London, E. C. 4, England

Durez for boxes, trays and jars

Within recent years, a notable tendency to increase the beauty of modern packages has been evident. Back of the movement, now more pronounced than ever, is the realization that a container must do more than carry and protect the product. Proof is widespread that an attractive package secures attention, establishes the article in the customer's mind, and definitely makes sales.

Alert to the advantages of a colorful, clean, and unusual package, an increasing number of manufacturers are adopting Durez. It is suited for cake and candy boxes, for children's lunch boxes, for bridge cards. It has a place in the manufacture of jars for facial creams, for powder boxes, for display cases of widely varying shapes and styles, for watch and jewel cases, for safety razor containers, cigarette boxes, humidors, serving trays, cups, dishes, stands, and many other similar products.

One of the finest features of Durez is the fact that manufacturers may have their own individual designs, seals, or trade-marks molded right on the container. The pattern will be sharp and legible; this material lends itself admirably to all types of designs, even those commonly considered difficult.

So favorable has been the reaction to the use of Durez for such purposes that hundreds of customers, recognizing the changed appearance in the new container, have voluntarily expressed their approval to one manufacturer whose products, during the last eighteen months, have been packaged with Durez.

SELECTED FOR NINETY-FIVE PER CENT OF ALL MOLDED CLOSURES DUREZ

CLOSURES that are fairly alive with color . . . bottle caps and jar covers that harmonize with the color scheme of your package and your advertising. Such are the products of Kurz-Kasch.

A wide variety of standard shapes and sizes for both jars and bottles may be had moulded of Bakelite, Beetle or Lumarith in various colors. Each cap or jar cover, whether of standard shape or made expressly for you, will bear unmistakably the signs of the care and forethought which go into the creation of Kurz-Kasch products.

For closures which have all the beauty of appearance and design shown here, yet ones fitted expressly to your line, consult Kurz-Kasch.

The KURZ-KASCH COMPANY

Moulders of Plastics

NEW YORK DAYTON, OHIO CHICAGO

BEAUTY, convenience, protection, have attained new heights in the latest presentation of this year's fine products. Moulded cases by The Kurz-Kasch Company, specialists in moulded plastics, have contributed materially to the creation of a new standard of excellence in package decoration and refinement.

Kurz-Kasch moulded containers offer the surest solution to the problem of increasing sales. A moulded container will enhance your product and add a definite new stimulus to your sales.

By all means write for further information. Our research bureau will be glad to place in your hands all information pertinent to your needs.

The KURZ-KASCH COMPANY

Moulders of Plastics

NEW YORK DAYTON, OHIO CHICAGO

How to Increase 1931 Counter Sales

There are twenty-four effective answers to this question in the new EINSON-FREEMAN brochure—just published—

"Merchandising with Display Containers"

It illustrates, in color, a wide variety of combination shipping and display containers, used with notable success by leading national advertisers... This is the most compact and comprehensive text yet published on the subject and is an invaluable aid in determining the correct type to use to meet each individual package and selling problem. Write for your copy (gratis) to the address below.

A—The Einson-Freeman Double-Tier Container

B - Double Compartment Type Container

C—Folding "Balcony" Type Container

D—"Bargain Tray" Type Container

EINSON-FREEMAN CO., INC.

Lithographers

Inventors and Manufacturers of the Einson-Freeman Patented Double Tier Container

OFFICES AND COMPLETE MANUFACTURING PLANT

Starr and Borden Aves. Long Island City, N. Y.

New England Office: 302 Park Square Building, Boston, Mass.

H. R. BLISS COMPANY, Inc.

Manufacturers of Wire Stitching and Adhesive Sealing Machinery for Fibre Containers of Every Description

NIAGARA FALLS, N. Y.

50 Church St., New York
℅ Harry W. Brintnall Co., San Francisco, Cal.

Transportation Bldg., Chicago
℅ James Q. Leavitt Co., Ogden, Utah

PRODUCTS:

Box Stitchers, plain and automatic, for assembly of all types of paper boxes: Bottom, Top, and Combination Stitchers for assembly and sealing of solid fibre and corrugated shipping containers: plain and automatic equipment for stitching the manufacturer's seam on regular slotted containers: Corner Stay Stitchers: Cracker Caddy Sealing Stitchers: Bumper Case Stitchers: Portable Stitchers: Special Stitchers for Stockinettes, Candy, and Wood Fibreboard assembly: Stitchers for strengthening can cases: Adhesive Sealing Machines, both automatic and plain compression types: Special Equipment for assembly and sealing of Bliss Boxes: Flange Benders: Staple Removers: and Special Wire Stapling Equipment for processing and handling of various products.

BLISS STITCHERS:

Bliss Stitchers are made of the best and most durable materials, and are positively guaranteed for one year in respect of any defects in materials or workmanship. The stitcher head is made with interchangeable parts for driving any size of wire—bookbinder's, HyBar, ribbon, or special round or flat. Quick adjustments are provided for changing the length of wire drawn for varying thicknesses of stock to be stitched. Machines may be equipped to drive stitches from ¼" to 1⅛" wide, but standard widths are 5/16, 3/8, and 7/16" crown.

All Bliss Stitching Machines (except Portables) employ the Bliss (Patented) Stitcher Head shown in partial assembly in Fig. 1. All moving parts are made of steel, hardened when necessary. The cam is of special construction which permits extremely rapid operation. Former slides work on long bearing surfaces. Knives are specially hardened and can be re-ground many times. A special sharp stitch cutting block may be had to give a pointed stitch for use with corrugated board. The entire head may be quickly taken off for repair or replacement by removing three screws only, thus reducing the time necessary for repairs to a minimum.

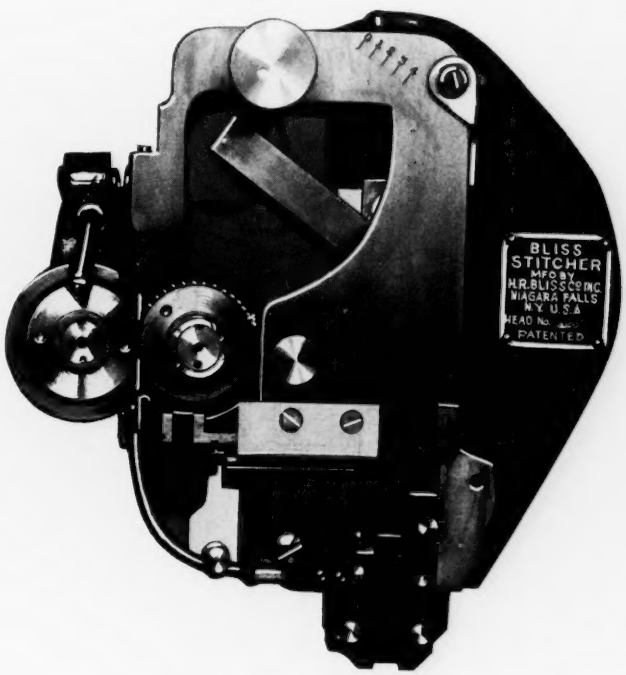


Fig. 1.—Bliss Stitcher Head

SPECIAL EQUIPMENT and ENGINEERING SERVICE

Bliss Engineers have had long experience in the design and construction of special stitching equipment for the manufacture, assembly and sealing of all types of paper and fibreboard containers. The H. R. Bliss Company makes a specialty of building up automatic equipment for the box industry and also for the processing and fabrication of a wide variety of industrial materials which involve wire stitching. Inquiries for this type of service will receive prompt attention.

BLISS BOX STITCHERS:

Bliss Box (or rigid arm) Stitchers are made with throats 15″, 25″, and 33″ in length. The end of the arm contains the hardened steel clincher and may be quickly adjusted up or down for varying thicknesses of stock. Clinchers may be had for any desired width of stitch and are quickly replaceable.

Fig. 2.—Bliss Box Stitcher

All Bliss Stitchers are equipped with motor of any desired electrical specification. The drive consists of a fibre pinion and iron gear, reducing noise to a minimum.

The speed of the machine may be varied to suit the nature of the work by changing the motor pinion. The Bliss Stitcher head will form and drive as many as 500 staples per minute, the only limitation on the speed of operation being the ability of the operator to handle the stock through the machine.

All Bliss Stitchers have multiple disc clutches of the automobile type, which permits starting and stopping without vibration. Fig. 2 shows the usual type of foot pedal construction, but for special work this part may be extended to the front or side or may be brought through the side of the pedestal to permit the operator to sit close to the machine.

Bliss Box Stitchers are regularly made with the clinching arm 40″, 45″, 50″ and 52″ from the floor but special heights will be furnished on request.

Many hundreds of standard Bliss Box Stitchers are in daily use for the assembly of paper cartons, suit boxes, telescope shipping cases, candy and hardware boxes, and other types of set-up boxes. They are also used for stitching many special products such as paper bags, bag handles, leather goods, trunks and suit cases, plywood and veneer boxes, stick candies, paper novelties, etc.

Special Box Stitchers (see Fig. 3) are made to order equipped with automatic and semi-automatic feeding and spacing device, special work tables with gauges, novel shapes and widths of stitch, stitches at 45° or 90° to the arm; also extra long throat machines (up to 48″). They are also obtainable with angle arms for handling extra large boxes, or with folding arm and post attachment for bottom stitching.

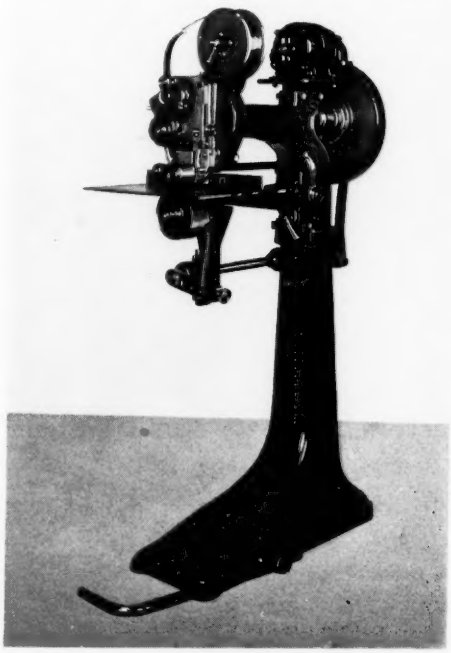


Fig. 3.—Bliss Box Stitcher (Automatic Feed)

H. R. BLISS COMPANY, Inc.

BLISS BOTTOM STITCHER:

Bliss Bottom Stitchers are used for stapling the bottoms of regular slotted containers, assembling the bottoms of Bliss Collapsible Boxes, and many other purposes. The post can be moved forward by means of a foot lever when large boxes are being placed in position, but for small or medium size boxes, the extra clearance between the head of the post and the stitcher head (peculiar to Bliss) usually makes this operation unnecessary. The head of the post (containing the clincher) can be moved up or down instantly with a few turns of the wrist, no wrench being required. The head contains a heavy spring which permits the clincher to move down when extra thick stock is being stitched. The post will not get out of position in use; and is quickly adjustable in any direction to center the clincher under the stitching head without moving the latter.

This machine is made with 15″ and 25″ throats and in standard heights of 45″ and 50″. The machine is usually set to drive 300 staples per minute and it is not unusual for an operator to bottom stitch 500 or more containers per hour.

This, and other Bliss Stitchers, may be equipped with **casters** at a slight additional charge, thus making them easily movable around the plant as needed.

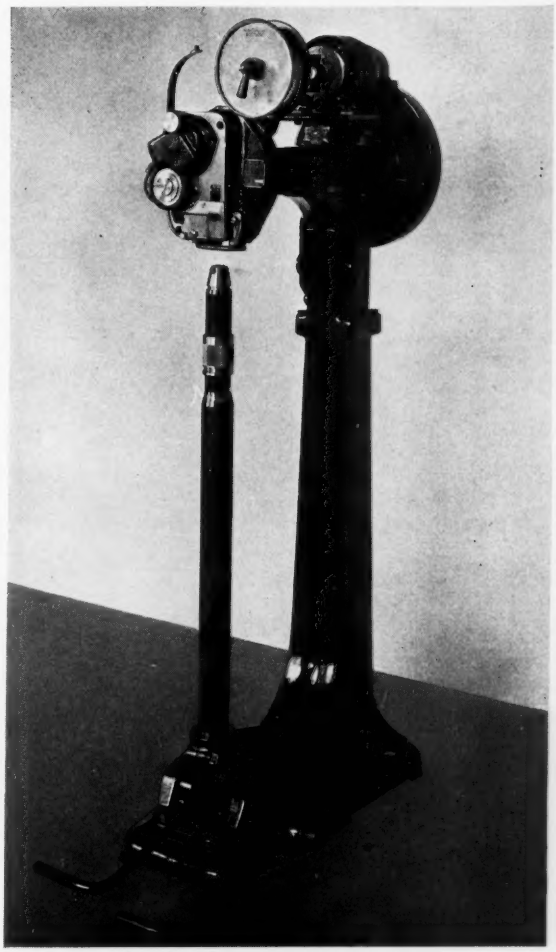


Fig. 4.—Bliss Bottom Stitcher

BLISS TOP STITCHER:

The Bliss (patented) Top Sealing Stitcher is used for wire stapling the top flaps of regular slotted containers or Bliss Boxes, and gives a positive seal that holds the case rigidly during shipment and, at the same time, offers a great saving over the cost of taping the joints.

Fig. 5.—Bliss Top Stitcher, mounted on casters

This machine is made with 15″, 25″ and 33″ throats, and in standard heights of 45″ and 50″, taking boxes up to 25″ or 30″ in depth, but higher machines may be had without extra cost. The machine may also be equipped with a V-Blade, a diagonal stitch being obtained in this case, also larger boxes may be handled.

The blade anvil is made of heat-treated, forged steel and the clinching end is quickly adjustable up or down without the use of tools. The work table is made of steel with special rolled edge and equipped with steel ball bearings to permit free motion in any direction of the box being stitched. The table is supported by the Bliss quick lift mechanism which is positive in action and instantly adjustable up or down. Movement of the table is facilitated by the use of counterbalancing steel springs. Tables are made in standard sizes, 26″ x 30″, 26″ x 40″, and 30″ x 40″; the table being movable on its support to suit conditions. The capacity of the top stitcher depends upon the size of the box and the skill of the operator, and is usually from 3 to 4 cases of average size per minute.

BLISS COMBINATION STITCHER:

This machine can be used both for bottom stitching and top sealing and is intended for plants whose production does not warrant the installation of separate Bottom and Top Stitchers.

For assembling cases by bottom stitching, the blade anvil of the machine is dropped down against the pedestal by removing a pin; the table is swung to one side, and the post placed in a socket on the base and locked into position. Neither arm nor table interfere in any way with the operation.

After the desired number of cases have been bottom stitched, the post is removed and placed in a socket on the side of the pedestal, the table and blade anvil swung into position and locked in place, whereupon the machine is ready for top stitching of the loaded containers.

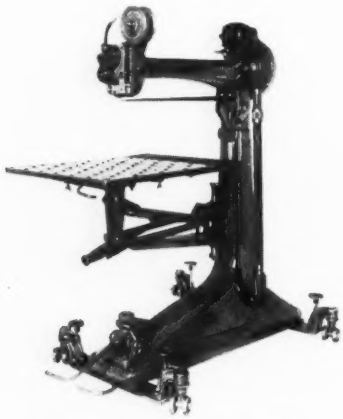


Fig. 7.—In position for top sealing

The change from bottom stitching to top sealing can be made in less than one minute and, therefore, does not appreciably interfere with production.

Bliss Combination Stitchers are much used in such industries as shoe manufacturing, meat packing, and the shipping of foods, shingles, rubber goods, chemicals, etc.

The Bliss Combination Stitcher is made with 25″ and 33″ throats and in heights of 45″ to 50″. The motor is ¼ H.P. and any size of wire may be driven.

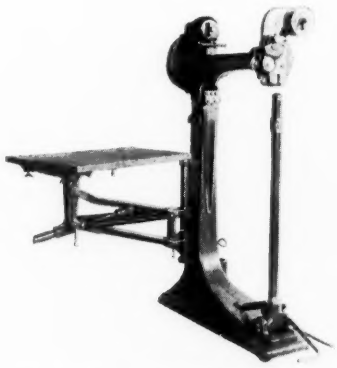


Fig. 6.—In position for bottom sealing

BLISS BUMPER CASE STITCHER:

The Bliss Bumper Case Stitcher shown in Fig. 8 is used for stitching automobile bumper boxes, shade cloth cases, or other boxes that are very long compared with width and depth. The machine is set up on a work table and is operated by a foot pedal extension on the floor. A short blade anvil is employed and the operation of the machine is analogous to that of the Top Stitcher. A number of such machines are in use daily, saving their owners a considerable amount of money because of the replacement of taped joints with wire stitching.

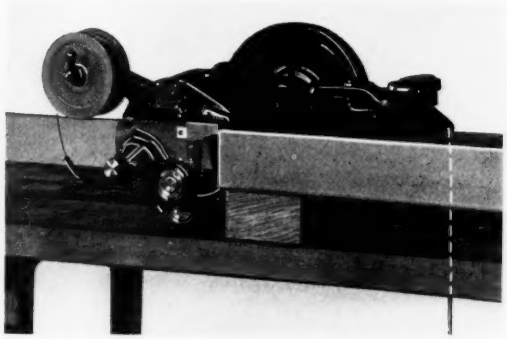


Fig. 8.—Bliss Bumper Case Stitcher

BLISS CADDY COVER STITCHER:

This machine is used for stitching flanged covers onto cracker caddies while in upright position, at a speed of 20 to 25 per minute. Any length or width of case can be handled and adjustments for height may be instantly made. It is really a Top Stitcher with horizontal head equipped with short blade anvil and special work table.

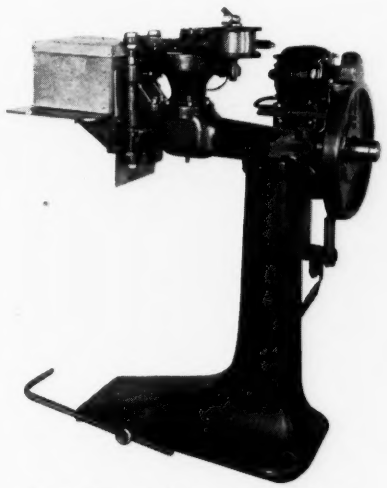


Fig. 9.—Bliss Caddy Cover Sealing Stitcher

The same machine can be used advantageously for quickly stitching the tops of suit boxes with inner flaps folded out. (Bliss patented construction.)

BLISS STOCKINETTE STITCHER:

In the processing of smoked hams, butts, and other similar products, it is becoming the custom to place them in a cloth bag, closed tightly at each end by wire stapling or tying with string.

The Bliss Stockinette Stitcher has been especially designed to handle this operation quickly and conveniently. The machine is equipped with a special work table on which the hams or butts (enclosed in the casing) are laid before placing under the Stitcher, which drives a special staple, circular in form, around the bag. The size of wire used is #18 x #20, two staples being driven, close together, between the adjacent hams. The staple holds the bag firmly in place around the meat, but does not cut the fabric. A special knife is attached to the stitcher head, and as the operator is removing the bagged product, he cuts the bag between the staples. An increasing number of large meat packers are adopting the Bliss Stockinette Stitcher as standard.

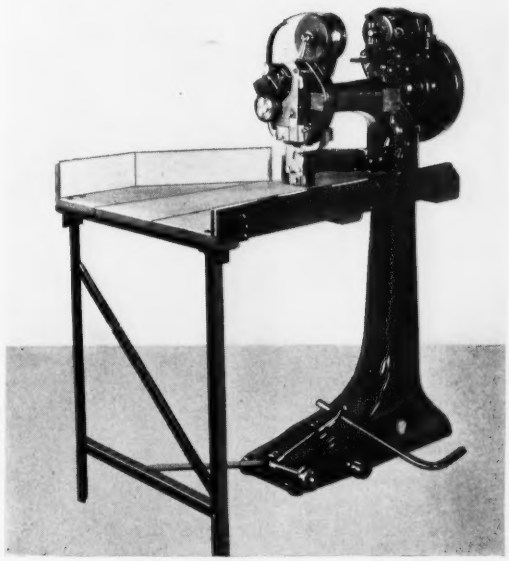


Fig. 10.—Bliss Stockinette Stitcher

BLISS WOOD FIBREBOARD STITCHER:

For holding together two or more thicknesses of compressed wood fibre and similar products, a machine has been designed which drives a "deflected leg" staple, illustrated in Fig. 11. This staple is made of No. 16 round wire and holds the plies of material firmly together without any projection of wire on the lower side. The elimination of the clenched ends of the wire is of special advantage when the compressed board is to be used for heat insulation as the inner surface is free of metal and may be sanded to size, and conduction of heat through the metal of the staple is obviated.

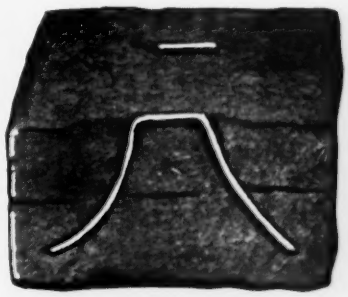


Fig. 11.—Bliss Wood Fibre Stitch

H. R. BLISS COMPANY, Inc.

BLISS ROLL SPLICER FOR FLOOR COVERING STOCK:

In the processing of linoleum and saturated felt stock, it is necessary to make temporary splices between the ends of the rolls of stock, now involving a lap of 18″ to 24″ of material, the joint being fastened by hand, and the overlapping stock afterwards cut off and discarded.

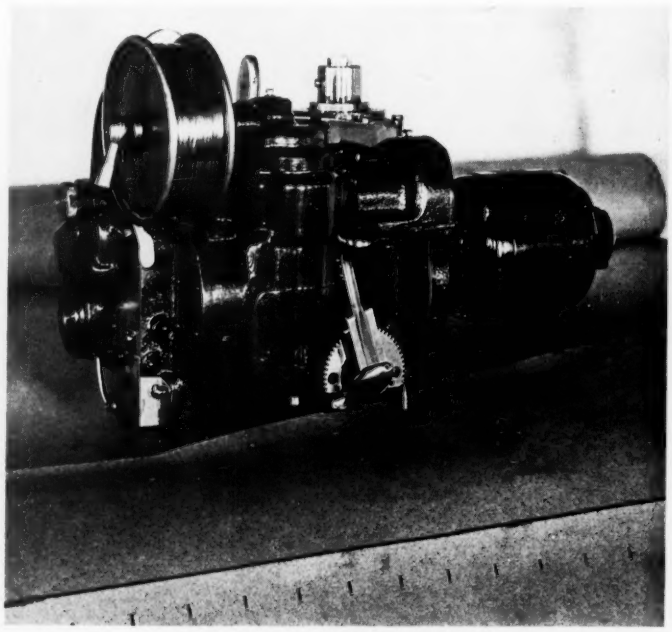


Fig. 12.—Bliss Roll Splicer

The Bliss Roll Splicer is a semi-automatic machine which fastens the joint by wire stitching with a single or double row of staples and requires only 3″ to 4″ of material in the lap. The only labor required is for placing the ends of the stock in proper position in the machine and clamping them in place, the machine automatically moving along the seam and setting the staples evenly and rapidly.

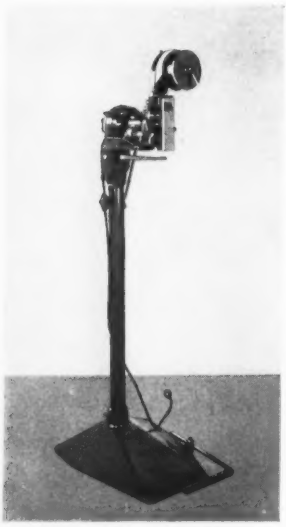


Fig. 13.—Bliss (Light Model) Box Stitcher

Stock of any normal thickness may be handled and the staples may be placed at intervals of either ⅞″ or 1¾″, or closely spaced at the ends of the lap and widely spaced in the center. The complete splicing operation on stock 8′ wide can be accomplished in 1½ minutes, of which only 20 seconds are required for the actual stitching.

The Bliss Roll Splicer is also made in completely automatic form with a cut-off for the ends of the stock, rolls to feed the same into the Stitcher, and fully automatic stitching equipment with double-head stapler. The complete operation on a 10′ roll can be completed in less than 50 seconds.

BLISS LIGHT MODEL BOX STITCHER:

This machine was designed for use by the small manufacturer with few boxes per day to stitch; also for use on stitching operations on light material. It is ruggedly built and equipped with the special stitcher head used on Bliss Portables. It is a popular model in its field.

BLISS CORNER STAY STITCHER:

This Stitcher is made with 15″ throat and is used for stapling the corners of cracker caddy covers and similar boxes. The staple will positively draw together the spread between the cover flanges and clenches the staples tightly into the board. The operating speed is 20 or more covers per minute.

WIRE TABLE:

The following table gives the feet per pound and the number of average length (1⅛″) staples per pound of the most frequently used sizes of stapling wire:

	Ft./Lb.	Staples/Lb.
Flat Wire .017 x .103	176	1920
" " .020 x .103	142	1550
" " .023 x .103	107	1170
No. 1 HyBar .020 x .060	260	2840
No. 2 HyBar .024 x .060	214	2330
No. 18 x No. 20	220	2250
No. 20 x No. 25	460	5010
No. 18 Round	166	1810
No. 20 "	310	3380

BLISS STITCHERS FOR REGULAR SLOTTED CONTAINERS:

The Bliss R.S.C. Stitcher is designed for stitching the manufacturers' seam of regular slotted containers. It incorporates the regular high speed Bliss Stitcher Head into a machine with steel work table, provided with quickly adjustable guides. The flaps are positioned and held in place during stitching by the "Bliss Open-Head Device," which is rigidly attached to the stitcher head casing, and is made of one piece and is self-supporting, the clincher arm not resting upon the box blank at the moment of stitching as is the case with competing machines.

These machines are made with throats 15″, 25″ and 33″ in length and either 45″ or 50″ in height. The work table is supported by a rigid arm and may be raised or lowered to suit the work. The table and Open-Head Device may be removed and the machine used for regular box work if desired.

Fig. 15 shows a Stitcher for manufacturer's seams with diagonal head which drives a staple at 45° to the grain of the board. This is particularly desirable when used on corrugated stock as the staple straddles the corrugations and thus the holding power is increased. This type of machine was brought out to meet the increasing demand for corrugated boxes (especially with kraft liners), with the manufacturer's seam stitched instead of taped.

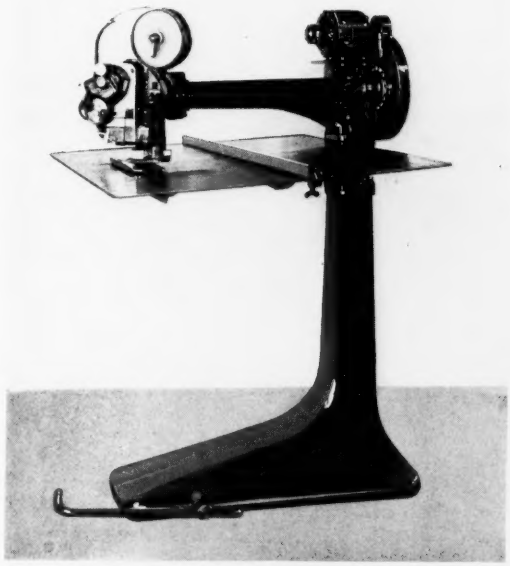


Fig. 15.—Bliss R.S.C. Stitcher (Diagonal Stitch)

The Diagonal Head Stitcher may be had in throat lengths of 32″, 42″ and 48″, heights the same as above.

The Open-Head will regularly handle A-Flute board but can be made to accommodate double-double A-Flute stock.

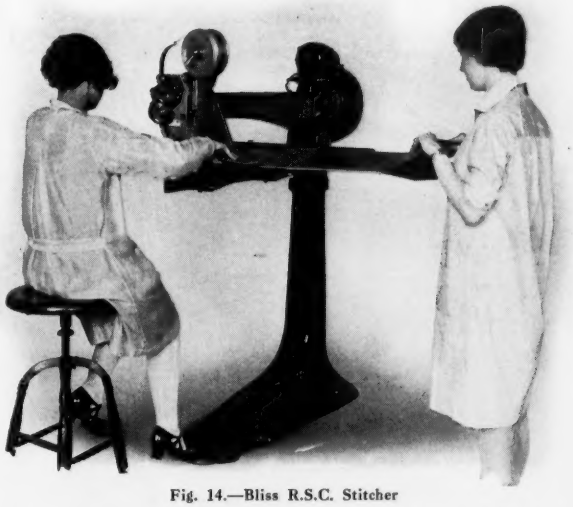


Fig. 14.—Bliss R.S.C. Stitcher

CORNER REINFORCING STITCHER:

Regular slotted containers used for can cases are usually made of solid fibre with vertical grain because of the added strength and protection to the goods. Vertical grain cases, however, are very apt to break or split at the corners when handled unsealed.

A Special Bliss Stitcher has been placed on the market for driving a 1⅛″ crown staple around all four top corners, the staples being driven into the box blank while flat and made loose so that they will tighten up around the box when the latter is squared up in assembly. Such a blank is shown in Fig. 16.

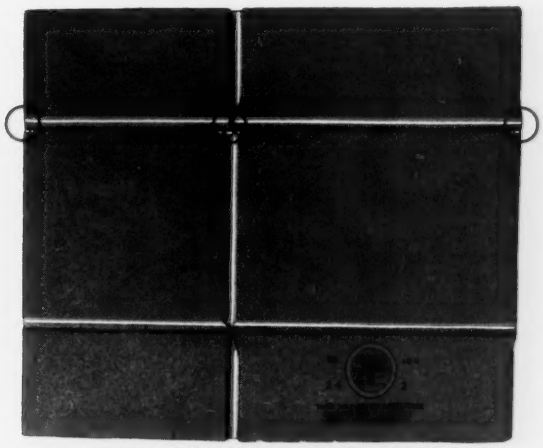


Fig. 16.—Vertical Seam Reinforcing Stitch

The use of the Bliss reinforcement obviates the former difficulty with vertical grain boxes and yet is very inexpensive and quick to apply. The work can be done on Bliss Single or Multiple Head Stitchers.

BLISS AUTOMATIC R.S.C. STITCHER:

This machine is designed to stitch the manufacturer's seam in regular slotted containers in the most rapid manner, the operator having nothing to do but place the blanks on the feed table. The machine automatically feeds in the box blank, sets the staples, properly spaced, with single or tie stitch at the ends of the seam. It is equipped with the regular Bliss high speed stitcher head and has a special (patented) feeding and spacing mechanism that operates positively and accurately at the highest stitching speeds. No staple can be driven unless a box blank is under the stitcher head. Feeding is accomplished by knurled rolls and the finished box blank is ejected by means of rolls driven at a higher speed than the feed rolls.

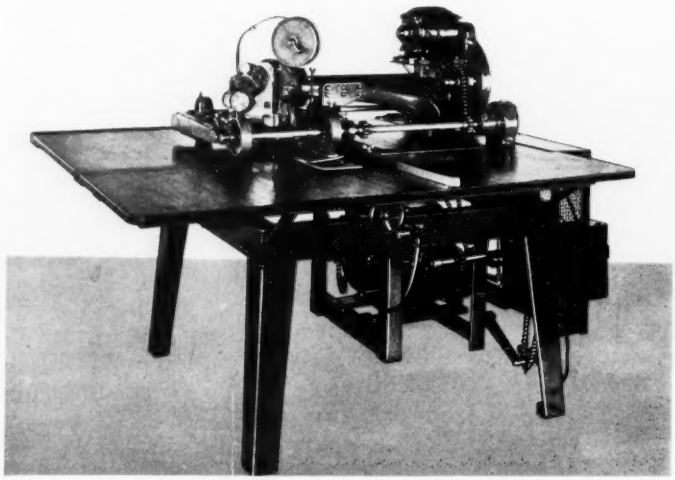


Fig. 17.—Bliss Automatic R.S.C. Stitcher

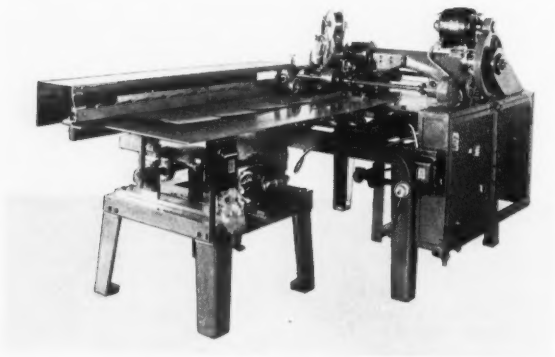


Fig. 18.—Special Automatic Folder and Stitcher

This machine is especially useful for handling long runs of cases that are comparatively deep (such as containers for automobile bumpers, shade cloth, etc.), although it will economically handle any case containing five or more stitches in the manufacturer's seam. It is quickly adjustable for handling different sizes of cases.

In one typical installation this machine is handling seventeen cases per minute on which the seam contains twenty-one staples.

Fig. 18 shows the same machine with a special automatic folding device built in. This is used for folding and stitching a collar around the top of a special type of fibre fruit box and is fully automatic. This machine is an example of the special types of automatic equipment that the H. R. Bliss Company is prepared to design and build for the trade.

BLISS STAPLE REMOVER:

Fig. 19 shows an inexpensive hand staple remover which has proven very satisfactory to the trade. It is much used in opening cases sealed by wire stitching and also for the removal of temporary stitches in warehousing operations. The device is very simple in construction, the jaws are of hardened steel, and staples may be removed from solid fibre and corrugated board without damage to the material, and much more rapidly than by the usual method of prying out with a screwdriver.

Fig. 19.—Bliss Staple Remover

BLISS PORTABLE STITCHER:

This new and unique machine is entirely self-contained, including a built-in Universal motor, new type stitcher head (patent applied for), and special styles of blade anvil. The entire machine weighs only 20 lbs. and is usually supported by means of a spring from an overhead hook or trolley so that the operator can move it freely in any desired direction, but does not have to support even the small weight involved. Moving parts are made of hardened steel while the framework is constructed of light metals and alloys, thus combining a maximum of strength with a minimum of weight. Any of the standard stapling wires such as bookbinders', ribbon or HyBar may be driven with this machine, regular 5 lb. or special 1½ lb. coils being used. The machine is operated by pressing a conveniently located button with the thumb, driving one or a succession of staples as desired. It is regularly equipped with a 10″ blade anvil, but several special types of anvils have been designed for handling different styles of work.

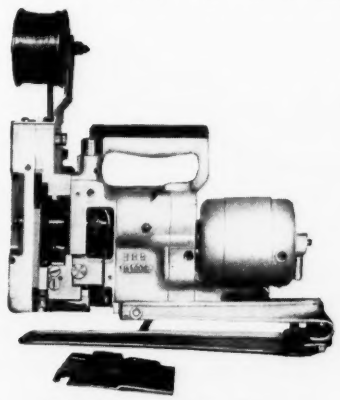


Fig. 20.—Bliss Portable Stitcher

Fig. 21.—Sealing top flaps of Bliss Box with portable stitcher

The Bliss Portable Stitcher has been designed to meet a long-felt need and is especially recommended for the sealing of containers of unusually large dimensions or exceptional weight which are awkward or impossible to handle on a regular top stitcher. Another important use is for sealing the tops of mixed sizes of cases varying in height and requiring constant readjustment of the table of a standard top stitcher. The outstanding advantage of the Portable for such uses is that the cases need not be removed from the conveyor line or handled in any way, the Stitcher being taken to the case rather than the case to the machine as at present. Fig. 22 shows the Portable in use stitching a full sized mattress case impossible to handle on a standard top stitcher.

A special "C" shaped blade Anvil has been developed for stitching long seams of regular slotted containers or Bliss Boxes, the curved end of the Anvil (carrying the clincher) being inserted under the flaps to be stitched and functioning like the Bliss open head device. It differs from the latter however in that it can be withdrawn from the end of the stitched seam through a 2″ opening, being turned out around the last staple driven. This is one of the most important applications of the machine and one that is coming into considerable use.

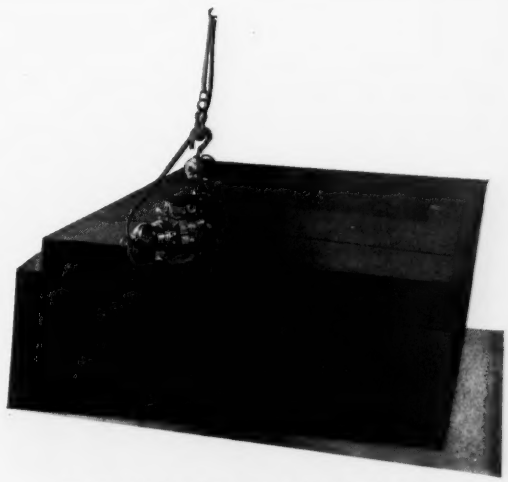


Fig. 22.—Stitching long seams with portable stitcher

Another use is for the setting of temporary stitches in the top flaps of containers for warehousing before permanent sealing is required, this being accomplished without removing the case from the conveyor line.

H. R. BLISS COMPANY, Inc.

BLISS ADHESIVE SEALER:

The Bliss Sealer or compression unit, shown in Fig. 23, differs from other similar machines in that both top and bottom belts are driven, thus maintaining even compression and making it possible to pass a single box through if desired. The bottom roller bed can be set at any desired point and the top unit is quickly adjustable up or down by means of a crank. Roller guides are provided on the entrance end of the machine, both top and bottom, which hold the sides of the box firmly in place until the adhesive has taken its initial set. These guides are quickly adjustable for spacing, being moved in or out simultaneously by a crank.

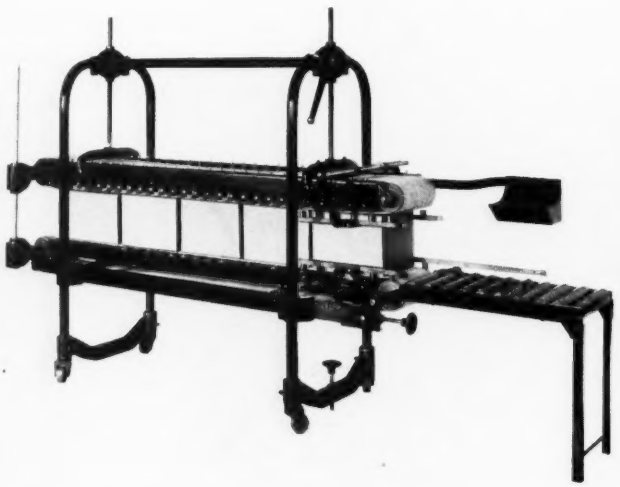


Fig. 23.—Bliss Compression Sealer

The driving mechanism is a self-contained unit (entirely enclosed) with phosphor bronze gear and hardened steel worm of the best type. An automatic trip is provided, actuated by each entering box so that the machine only operates as new boxes are pushed over the trip by the operator. The Sealer is furnished with casters and is thus easily moved wherever needed; screws with handwheels being provided to support the machine when in use. The motor is small and can be operated from a lighting socket. Rollers all operate on ball bearings.

Standard lengths are 7′, 9′, 12′, 15′, and 20′, but Sealers may be built for any greater length required.

The capacity of the Sealer depends upon the length of the case and the kind of board of which it is made; for example, a 7′ Sealer will handle with ease 450 boxes per hour 12″ in length made of jute lined corrugated board.

BLISS AUTOMATIC GLUER AND SEALER:

The Automatic Gluer may be built into Sealers up to 15′ long, beyond which it is furnished as a separate unit. The Gluer is operated thru a central shaft which also acts as a support, thus economizing on space. The skip gap cam is quickly adjustable for the length of gap required. The machine is portable and can be moved as a unit if desired. An automatic feeder permits only one box to enter at a time. The glue pots are made of aluminum and the glue rollers of brass, carefully fitted into the glue pot. The glue rollers are instantly adjustable both for height and for spacing. Operating and adjusting levers may be on either side of the machine, as desired. This machine is completely automatic and will handle up to 22 cases per minute.

Fig. 24.—Bliss Automatic Top Gluer and Sealer

H. R. BLISS COMPANY, Inc.

BLISS BOXES

The strongest and most economical fibre container on the market today is the BLISS BOX (patented), which is of three piece construction, comprising a body sheet forming the bottom, two sides and top, and two end panels, flaps being provided for assembly by wire stitching.

Fig. 25.—Bliss Boxes

Over thirty million BLISS BOXES were used last year by such nationally known concerns as the National Biscuit Co., Endicott Johnson Corp., U. S. Rubber Co., Diamond Match Co., Procter & Gamble Co., Swift & Co., Ohio Match Co., Hood Rubber Co., Wilson & Co., Dominion Rubber Co., Hecker-H-O Co., Hoberg Paper & Fibre Co., Snider Packing Co., Scott Paper Co., Armour & Co., Dunn, McCarthy, Inc., Mathieson Alkali Co., and many others.

Some of the products regularly shipped in BLISS BOXES are package foods, shoes, soap, soap powder, canned goods, fresh and smoked meats, sausages, pail lard, bulk macaroni, matches, toilet paper, packaged chemicals, etc. The use of BLISS BOXES has doubled in the last three years.

BLISS BOXES are *stronger* because all four vertical seams are reinforced and because the grain of the board can be run to give maximum resistance to stress on the sides and ends. The strength of the BLISS BOX is concentrated at the edges and corners to withstand rough handling in stacking and transit. Both drum tests and actual service have demonstrated their value for the safe packaging of merchandise.

BLISS BOXES are *economical* because they contain no waste stock, the saving in area of board for a given cubical content varying from 8% to 25% of that required for the old type regular slotted carton. In addition, the extra strength of the BLISS BOX often permits the use of lighter board throughout, or of a combination of lighter body sheet with regular weight end panels. In such instances the saving in weight may be as high as 40%. Freight charges are reduced by the use of Bliss Boxes due to the lighter weight, the saving frequently amounting to from $2.50 to $25.00 per thousand.

Many different styles of BLISS BOXES are available to suit individual requirements, size, nature and weight of contents, and the number used per day.

Fig. 26.—Bliss Boxes in partial and complete assembly

Various types of machines are also available for assembling and sealing these different styles of boxes, the more important of which will be described hereinafter.

BLISS BOXES are manufactured of solid fibre or corrugated board by all of the leading box mills in the United States and Canada, under license from the H. R. Bliss Company, Inc.

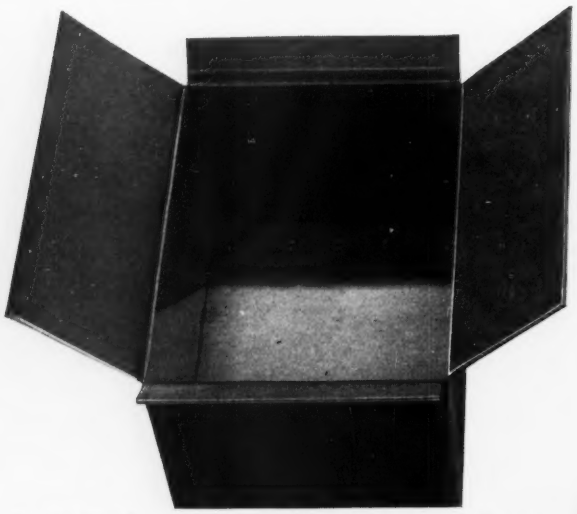


Fig. 27.—Bliss Box, open and ready for packing with overlap in center

The Bliss #2 Box is the most economical type and is largely used where the daily requirement of cases is great. In this style the stitching flanges are a part of the end panels and for assembly are stitched onto the body blank as shown in Fig. 26, a Bliss Double-Head Stitcher being usually employed.

The Bliss #4 Box has the flanges on the body sheet, stitched to the end panels when assembled. This case contains slightly more board than the #2 Style, but has the advantage of having the flanges at the ends

Fig. 29.—Bliss Box, open and ready for packing with extended inner flaps

of the case which gives added protection for the shipment of products such as canned goods. This box may be assembled on a Bliss Box Stitcher or Bliss Top Stitcher, which is an added advantage to the small user since the expense of buying a Double-Head Stitcher is avoided. It is much used by meat packers, canners, and by concerns having relatively small requirements of cases per day.

The Bliss #4-2 Box has flanges both on the body sheet and the end panels and when assembled has a double reinforcement on all of the vertical seams. This case is used where exceptional stacking strength or protection of the contents is required.

The Bliss #24 Box is made of four blanks, the body sheet being split along the middle of the bottom, and is usually assembled at the box mill in one-piece form. It has the advantage for the small user or user of many sizes that it comes to his plant in knocked-down condition but at the same time it provides all of the savings in stock inherent in other types of BLISS BOXES.

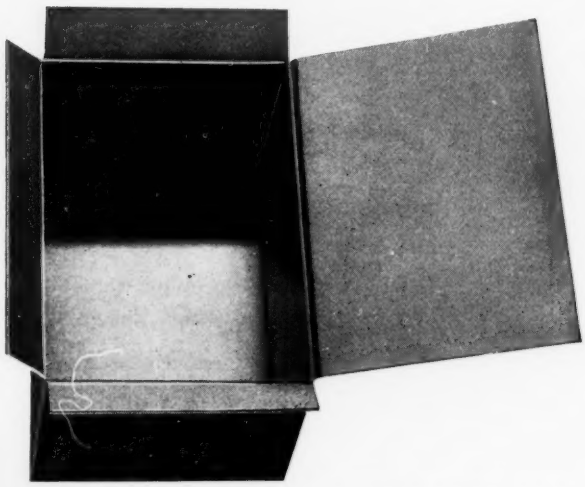


Fig. 28.—Bliss Box, open and ready for packing with overlap at side

The bottom is assembled on a Bottom Stitcher or may be taped. This box is returnable for reuse by removing the staples on the bottom with a Bliss Staple Remover.

There are many other types of BLISS BOXES in use but the above mentioned are those which serve the principal requirements of the average shipper. Full information on other types will be promptly given on request.

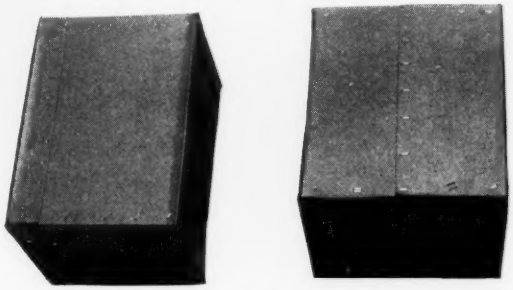


Fig. 30

Bliss Box, Side Overlap Bliss Box, Center Overlap

H. R. BLISS COMPANY, Inc.

Many millions of BLISS BOXES are being used yearly for the packing of products formerly shipped in wood or wire bound containers. In many instances the BLISS BOX is the only type of fibre case that is strong enough to carry the goods, and of course the economy of using the BLISS BOX in place of wood is very great while the saving in freight charges is equally large.

Figs. 25, 31, and 32 illustrate some of the BLISS BOXES now in regular and large scale use by nationally known shippers in this country. The H. R. Bliss Company, Inc., will be glad to send its representative to any plant upon request to analyze its packing and shipping problems and recommend the best type of container to meet the conditions, the most advantageous methods of assembling and sealing the same, together with the best and most economical type of equipment to employ.

Fig. 31.—Bliss Boxes for Meat Packers

The use of the various types of BLISS BOXES is permitted under Rule 41 of the Consolidated Freight Classification. Methods of assembling and sealing as well as the box construction are covered by U. S. and foreign patents, issued and pending, all controlled by the H. R. Bliss Company, Inc.

BLISS BOXES are usually sealed by wire stitching either with center or side overlap, shown in Figs. 27, 28, and 30. This operation is conducted on a Bliss Top Stitcher either of standard type or automatic.

BLISS BOXES can also be sealed by adhesives using a 2" overlap on side, center, or end, or by a combination of wire stitching and adhesive sealing. This latter operation can be conducted on fully automatic machinery requiring no hand labor whatsoever after the goods have been placed in the container.

Another method of sealing, not so much used because of the extra board required, is shown in Fig. 29, the outer flaps meeting, inner flaps extended to 6" apart, and sealed by adhesives with plain or automatic gluers. In some industries the added strength and protection inherent in this method of sealing are found desirable for certain products.

Fig. 32.—Bliss Boxes

BLISS FLANGE BENDER:

For plants using large numbers of Bliss #2 Boxes made of solid fibre the Bliss Flange Bender is recommended for bending the creases on the end panels before assembly, thus relieving the operator of the assembly stitcher of this work and speeding up his production of cases.

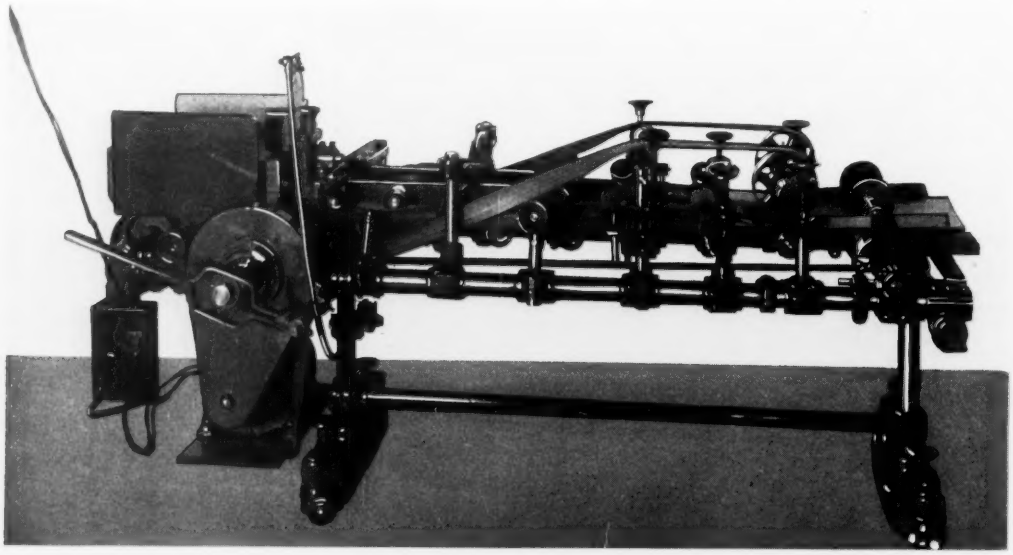


Fig. 33.—Bliss Flange Bender

This machine, shown in Fig. 33, is made both in single and tandem types. The former breaks the bottom crease in one operation, the ends being passed through a second time to bend the side creases, while the tandem machine handles all of the flaps in a single operation. This machine will easily bend 300 or more ends per minute and is quickly adjustable for different sizes of end panels.

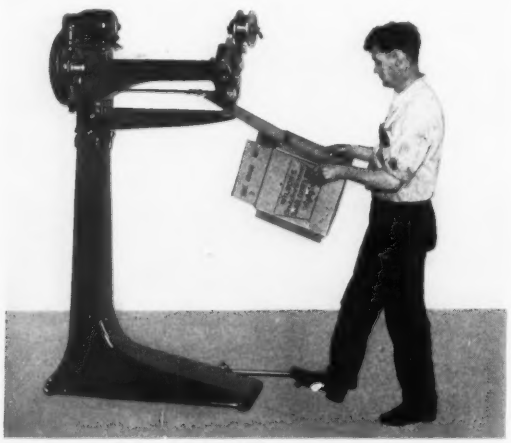


Fig. 34.—Bliss Single Head Assembly Stitcher

BLISS SINGLE HEAD ASSEMBLY STITCHER:

The Bliss #4 Box is usually assembled on the machine shown in Fig. 34, which is fitted with a gauge on the arm and also a panel holder to aid the operator in holding the work. The end panels are stitched to the flanges on the part of the body sheet forming the bottom of the case, after which the side flanges are stitched in place. A skilled operator can easily assemble two average sized cases per minute. This machine may also be used to complete the assembly of the Bliss #4-2 Box, stitching the flanges on the end panels after the box has been assembled in #2 form on a Double-Head Stitcher.

Bliss #4 Boxes can also be assembled on a Bliss Top Stitcher where the quantities involved are relatively small, thus making it possible both to assemble and seal the cases on a single machine. A special gauge is furnished for the blade anvil when used for assembly purposes.

BLISS V-ARM ASSEMBLY STITCHER:

This machine may be used for assembling Bliss #2 Style cases where the number used will not justify the purchase of a Double-Head Assembly Machine. The V-Arm permits the long body blank to be handled readily, the case being assembled one side at a time. This machine may also be used for assembling the Bliss #4 Box. An operator can assemble one and one-half or more average sized #2 cases per minute.

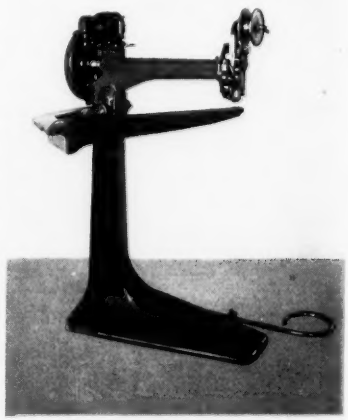


Fig. 35.—Bliss Box Stitcher, "V" Arm

BLISS DOUBLE-HEAD ASSEMBLY STITCHER:

This machine (patented) is designed especially for the assembly of Bliss #2 and #4-2 Boxes. It has a work table in the rear holding the body blanks, the end panels being stacked on either side of the operator. An automatic feeding and spacing mechanism is built in so that the operator has only to place the blanks in proper position and step on the lever, the staples being driven simultaneously in both flanges and properly spaced. Fig. 26 shows a typical Bliss Box after the first seam has been taken, while Fig. 36 shows the machine in operation on the second seam.

This equipment is very fast in operation, three to four or even more complete boxes being assembled per minute by a good operative. It is quickly adjustable for any length or width of box and drives a diagonal stitch which gives maximum strength to the seam.

Fig. 36.—Bliss Double-Head Assembly Stitcher

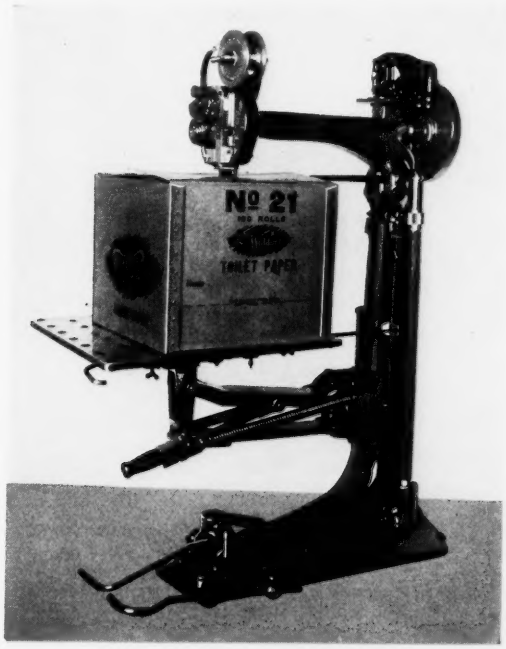


Fig. 37.—Bliss Top Stitcher

BLISS TOP STITCHER:

Fig. 37 illustrates the most common method of sealing Bliss Boxes by use of a Bliss Top Stitcher. The table is set to proper height, the flaps are folded in place and the blade anvil inserted. The center seam and flaps at one end are first stitched, leaving a 4″ space, the case then being reversed, the anvil inserted through the 4″ opening and the stitching completed. This gives a very tight and secure closure of the box and average sized cases can be sealed at a rate of three or more per minute. The blade anvil is rigidly supported and will not injure the contents of the case.

BLISS SIDE SEAM STITCHER:

Bliss Boxes overlapped at the side may be sealed on a regular Top Stitcher but it is often better to use a Side Seam Stitcher such as that shown in Fig. 38. This is fitted with a Bliss Open Head Clincher and will handle six to ten cases per minute. A space of 3″ to 4″ is left unstitched at each end of the seam for insertion of the blade anvil of a regular or Double-Head Top Stitcher used to stitch the two end seams.

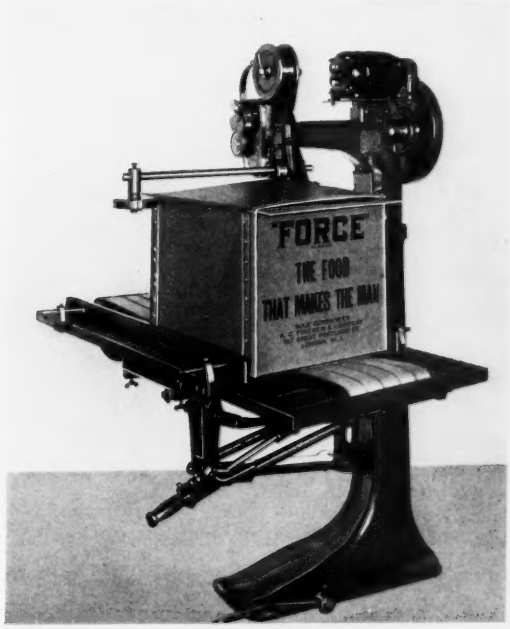


Fig. 38.—Bliss Side Seam Stitcher

On large cases the top seams may advantageously be sealed with a Bliss Portable Stitcher with "C" anvil, the advantage being that the case can be stitched without removal from the conveyor line.

BLISS BOX TOP SEALING EQUIPMENT:

When large numbers of cases of a single size are to be sealed the Bliss Full Automatic Side Seam Stitcher is recommended. This machine takes the box from the conveyor line, folds the flaps in proper position and feeds the same under the stitcher, which drives and spaces the staples and moves the partially closed box onto another conveyor line. The feeding mechanism also automatically squares up the box and holds it tightly in position while being stitched. The machine will handle twenty or more cases per minute and requires no labor whatsoever.

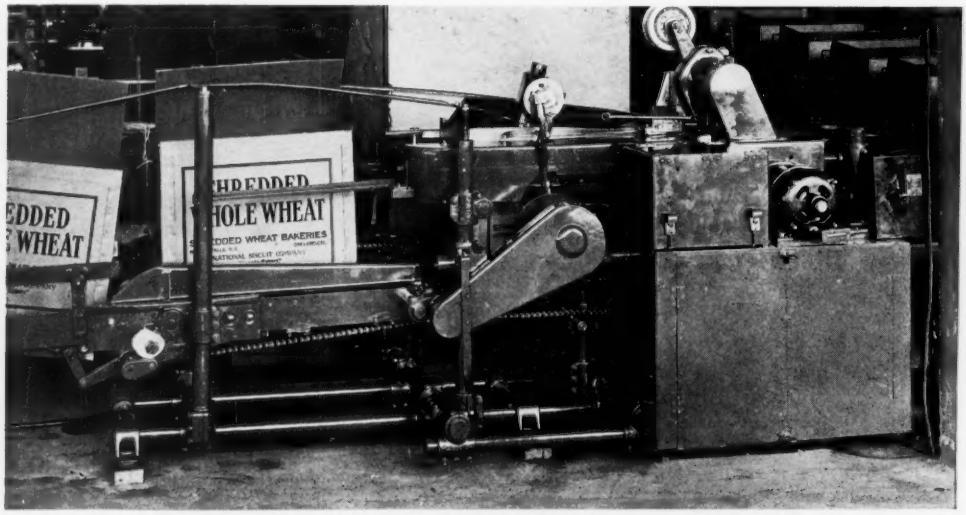


Fig. 39.—Bliss Full Automatic Side Seam Stitcher

The end flaps on boxes from the above machine may be stitched on the Bliss Double-Head Top Stitcher, shown in Fig. 40, which automatically feeds the box and drives and spaces the staples, the operative having only to move the case into the machine and see that the blade anvils are properly inserted.

Rollers are provided to keep the sides of the box in shape while the flaps are being stitched and a work table with ball bearings is used to facilitate the movement of the case. The capacity of this machine is twelve or more cases per minute.

There is another type of Bliss Double-Head Top Stitcher available which is completely automatic in its operation, requiring no operative, all feeding and stitching operations being done mechanically.

The end flaps of Bliss Boxes may also be sealed with adhesives on a Top Automatic Gluer and Sealer, under a recent ruling of the Consolidated Freight Classification Committee. Large users of Bliss Boxes can therefore seal the tops of such cases by fully automatic stitching or gluing machines, no labor whatsoever being required after the contents have been placed in the box. This is of great advantage in plants which use large numbers of cases and wish to employ straight line production methods.

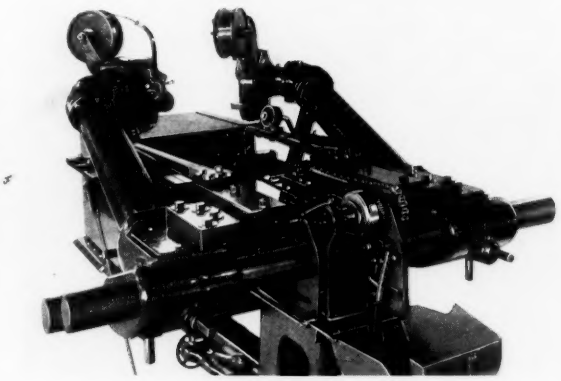


Fig. 40.—Bliss Double Head Top Stitcher

Sex in Boxes—

85% of All Consumer Sales Start Through the Eye

(See page 16)

YOUR ultimate customer whether man, woman or child is influenced by the color of your box.

Science has demonstrated this by practical sales experiments. Results have shown increased sales and profits by the use of certain colors to appeal to and please certain groups, depending on age, sex and station in life.

These factors *must* be taken into consideration and studied if your paper box is to get retail display space, attract the eye of your ultimate customer and materially aid the sale of your merchandise.

Make *Your* Box Sell Your Product

Be certain that the colors and design on your paper box appeal to your consumer market.

The "Tone Line" of Box Covering Papers offers you a wide choice to suit every type of consumer appeal.

Only a few illustrations are shown here but our complete line will suggest many more uses.

The "Tone Line" Box Covering Papers is moderately priced.

We will be glad to give you the benefit of our experience in selecting the correct paper for your paper box. Write us your problem and let us send you a few suggestion samples.

Send for our 1931 Sample books.

Study your Product and Market from a Color Standpoint—

Then Select your Box Covering Paper

8559 Here is a feminine box paper with a feminine design running through it with high attention value for women, suitable for a strictly feminine item purchased and used personally by women, such as hosiery, lingerie, etc.

1988 This design and color will appeal to the modern girl or young woman. It contains action, vividness and is suitable for a product to be sold to feminine youth.

734 Here is a distinctly masculine paper suitable for a product both purchased and *used* by men, such as sporting goods, or outdoor recreation products.

680 If your product must be sold to the youth or young man, the bachelor, here is a paper that will get his attention. It is suitable for haberdashery, and personal appurtenances.

1430 Children influence many sales of products for their use. Here is a paper with a happy Juvenile appeal for products used by children—and to amuse them, such as apparel, toys, games, etc.

2021 Luxury appeal for a product can be conveyed by such a paper as this where the appeal of the product is on this basis. Also by our gold, silver and velour papers, plain and embossed.

1490 Here is a Seasonal paper suitable for Xmas gifts. Other papers equally attractive for Easter, Halloween, Patriotic Holidays, Thanksgiving, Mother's Day, St. Patrick's Day, etc.

1854 Novelties are rather generally used and we have developed special papers for such products. These include colorful effects in card designs, florals, stripes, flashes, etc.

(LIFT UP SWATCH)

Specify the papers of

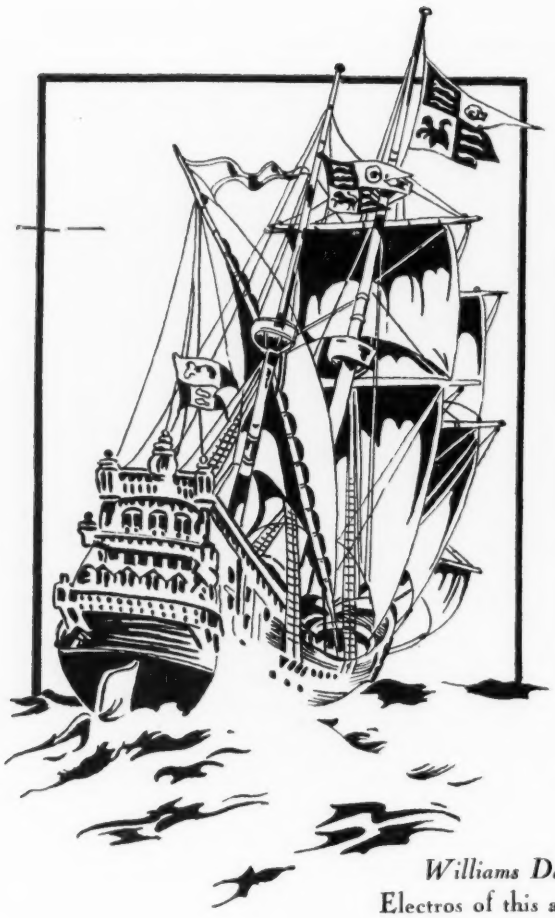
CHARLES W. WILLIAMS & CO., Inc.

Authorities on Box Covering Papers

303 Lafayette Street, New York

Chicago Boston

Has Your Line Been "Toned"?



Williams Design X-11
Electros of this and many other attractive designs may be purchased from us.
Send for particulars.

A Williams' Art Tone Design, printed on a "Tone Line" paper makes a beautiful box wrap--a pleasing change from the ordinary.

CHARLES W. WILLIAMS & CO., Inc.

Authorities on Box Covering Papers

303 Lafayette Street, New York

Chicago Boston

Has Your Line Been "Toned?"

(see other side)

CONSOLIDATED PAPER COMPANY FACILITIES FOR SERVICE

FOLDING PAPER BOXES
PLAIN SHELLS
CORRUGATED & SOLID FIBRE
SHIPPING CASES

FOLDING PAPER BOXES

For the individual package made of fine quality Box Boards. Printed in bright colors from your own designs or designs created in our own Art Department.

PLAIN SHELLS

For tight-wrapped packages.

CORRUGATED OR SOLID FIBRE SHIPPING CASES

Made of fine quality high test Liners and Corrugated Straw Board, printed in Bold Poster Style in bright colors built to carry your merchandise safely to destination and

SPECIALLY DESIGNED

Corrugated Shipping Cases to carry odd shaped, fragile or hard to pack merchandise on cushions of air safely to your customers.

At Consolidated Paper Co., you have at your service—Paper Mills producing 750 tons of Paper a day—Box Factories of very large capacity completely equipped for speedy and economical production—an Art Department and a Package Designing Department.

An opportunity to serve you will be appreciated

CONSOLIDATED PAPER CO.,
MONROE, MICH.

750 *PAPER MILL CAPACITY* **TONS DAILY**

MERRICK SCALE MFG. COMPANY

182 Autumn Street
PASSAIC, N. J.

Designers and Manufacturers of Weighing Machinery

PRODUCTS

Sorting Scales or Check-Weighers, Conveyor Scales for belt, pan or gravity roller conveyors, Hopper Scales, Special Weighing Machines.

SORTING SCALES

The Merrick Sorting Scale is used to mechanically reject light or heavy weight packages, cans, cartons, etc., without any interruption in the stream. The scale is built as a complete unit to suit any conveyor and may be inserted at any point in the stream.

The article to be check-weighed is fed to the scale, which checks by weight, rejecting or pushing aside the under- and over-weights, allowing the true weights to pass on.

Small cans to large containers may be handled with allowable tolerances of a few grains or ounces.

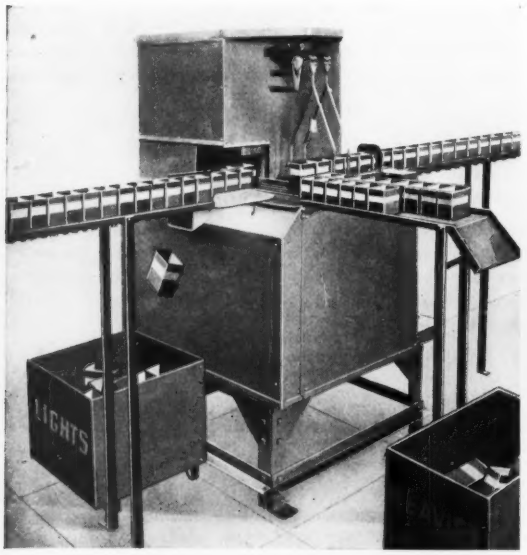


Fig. 1

Fig. 1 shows an actual installation of the Merrick Sorting Scale, check-weighing small empty cans before filling. The rejection is for under- or over-weight cans and the tolerance allowable is five grains and the speed sixty cans per minute input.

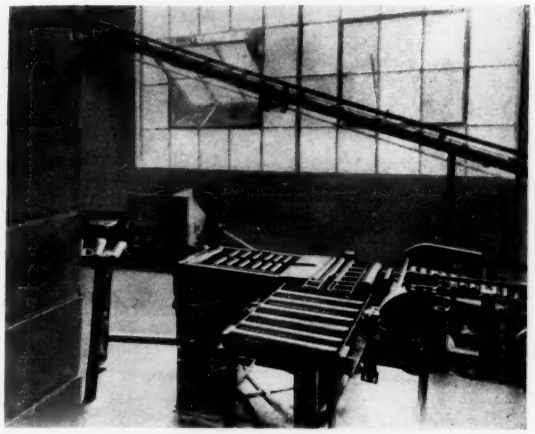


Fig. 2

Fig. 2 shows the Merrick Sorting Scale rejecting light weight cartons weighing between 15 and 35 pounds with an allowable tolerance of 2 ounces at a speed of 30 cartons per minute.

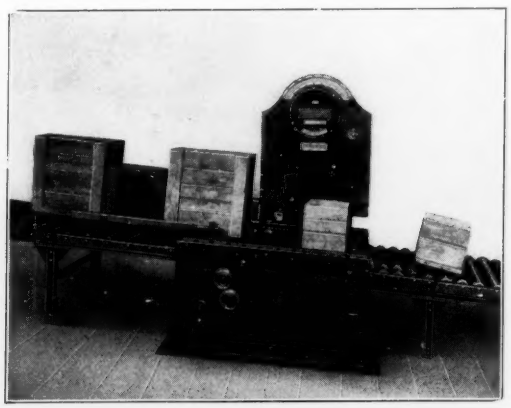


Fig. 3

Fig. 3 shows the Merrick Addoweight which weighs packages, bags, boxes, etc., while in transit over a gravity roller or belt conveyor, indicating the net weight on the dial, totalizing the weight on one counter and indicating the number of weighings on a second counter.

Merrick Engineers are ready at all times to discuss your weighing problems and to assist you in solving them.

Color *Commands* Attention

IMAGINE the beauty and distinctiveness that Maryland Blue Bottles will add to your products. On dealers' shelves, in window displays, and in the home, these attractive containers always stand out. Easy to see, easy to remember, they make your preparations easier to sell—for there is a well established merchandising principle that "the more readily a product is seen and remembered, the more freely it is bought."

Let us send you samples of Maryland Blue Bottles so you may see for yourself how they improve the merchandising of your products. They are unequalled for lifting bottled preparations out of the commonplace and increasing their sales appeal. We make them in a wide variety of popular shapes and capacities for products sold in several sizes. Or we shall be glad to supply you with bottles designed to meet your individual requirements. ¶ The high quality of our ware and service is attested by the fact that many leading manufacturers of proprietary products have been our customers for years. Write us today for sample bottles, stating what sizes you use.

We also make high quality green tint and flint bottles.

MARYLAND GLASS CORPORATION

BALTIMORE (M) MARYLAND

MARYLAND BLUE • GREEN TINT • FLINT BOTTLES

New York Representative: 270 BROADWAY *Pacific Coast Representative:* ILLINOIS PACIFIC COAST CO., SAN FRANCISCO, CAL.

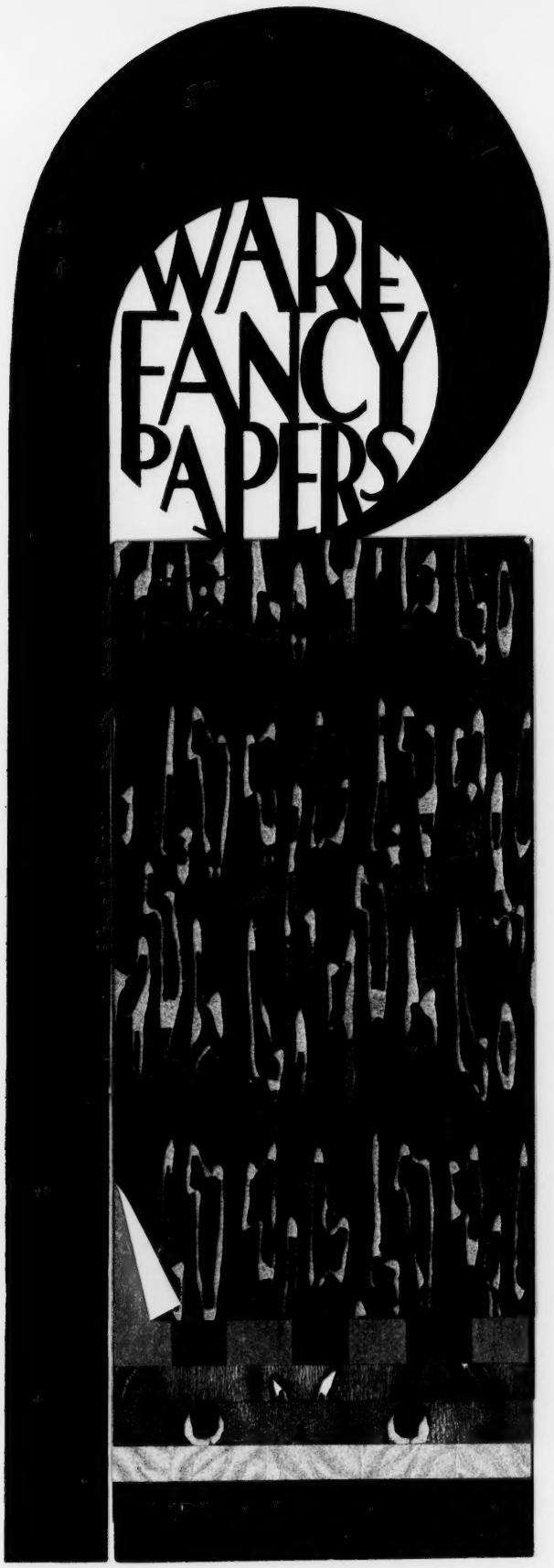
The LOOK *of* LEADERSHIP

THE PRINCE! The heir apparent to the throne. Has he the stuff of which kings are made? Who knows? But he has the kingly look. Yea, with his manly bearing and colorful vestments, he bids fair to win his spurs in any type of encounter.

¶ What about the product you dare to thrust into the sales tournaments of today? The field is crowded. Competition is keen. Does your product have the look of leadership?

¶ Don't deny it a distinctive appearance. Array it in a stunning Maryland Blue Bottle and watch it capture the public's fancy at the start. ¶ You will be interested in the sales suggestions on the back of this page.

MARYLAND BLUE BOTTLES



McLaurin-Jones Co.

In their line of Ware Fancy Papers, McLaurin-Jones present an ever replenished selection of almost infinite variety of design, of colors, of patterns and of finishes. The merchandising possibilities of packages employing these papers are apparent on first view. Further investigation but serves to re-establish the first impression. Years of pre-eminence in their field have won for Ware Fancy Papers a reputation which none dare challenge . . . which none can afford to ignore.

Sample books and large working sheets may be obtained by writing to

McLaurin-Jones Co.
Dept. R.
Brookfield • Mass.

No. 65206

No. 13078 Gypsy tripe

No. 90906

No. 91102

Waregold B. Emb. No. 24

Bright Red Super Color

Black Super Color

McLaurin-Jones Co. (Dept.R.)
Brookfield, Mass.

Gentlemen: Kindly forward to the undersigned sample books of Ware Fancy Papers. No obligation, of course.

NAME.....

.....

.....

ADDRESS.....

.....

.....

E. D. ANDERSON, INC.

Designers **PACKAGING MACHINERY** **Builders**

General Offices:
15 Park Place
New York, N. Y.

Factory:
45 Morris Street
Jersey City, N. J.

PRODUCTS

Cartoning Machines
Single Purpose, Adjustable and Special

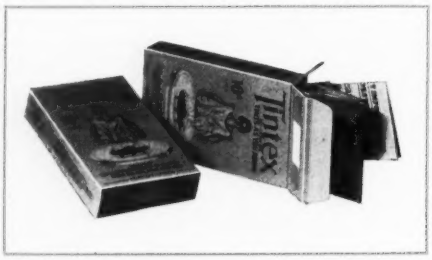
Bag Making Machines
Cellophane—Single and Double Wall Bags

Wrapping Machines
Cellophane, Foil, Wax Paper, Glassine

Bag Filling Machines
Dessert Powders, Teas, Cereals, etc.

Envelope Filling Machines
Solid Articles, Powders, Candy Pieces

Types of Anderson Cartoned Packages:

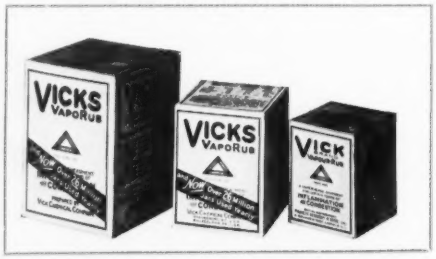


The packages shown are made on the Anderson Envelope-Filling and Cartoning Machine, Model CEF.

The Model CEF Machine takes the envelope from a magazine, measures into it the required amount of product, and seals the envelope. A knocked-down carton is taken from a magazine, erected, and loaded with the filled envelope, together with a small booklet of directions. The carton is then closed by glueing or tucking the ends.

This machine is a complete packaging unit, but the envelope-filling mechanism can be built as a separate machine.

Capacity: 40 to 50 packages per minute.



These three packages cartoned on the Anderson Adjustable Cartoning Machine, Model CA.

The Model CA Cartoning Machine is easily adjustable for several sizes within certain limits.

The machine takes cartons from a magazine, erects them, and loads them with the required objects, together with one or two descriptive circulars.

Capacity: 50 to 80 packages per minute
depending upon size and weight of articles to be cartoned.

The packages shown are made automatically on the Anderson Satchel-Bag Packaging Machine, Model CJ.

The Model CJ Machine takes the paper from a roll, makes it into a bag, loads the bag with dessert powder, or other product, and closes the bag. A knocked-down carton is taken from a magazine, erected, and loaded with the filled bag, together with a descriptive booklet or circular. These operations are performed entirely automatically.

On Model CJ Machine the product is volume measured.

On Model CJS Machine the product is weighed accurately.

Capacity: 25 to 35 packages per minute.

E. D. ANDERSON, INC.

Types of Anderson Cellophaned Packages:

Model WR Wrapping Machine wraps articles of round, oval, triangular, or irregular cross section in Cellophane, glassine, or waxed paper.

The objects to be wrapped are fed into a conveyor, which carries them to a wrapping station at which the wrapping material is cut from a roll and wrapped around the object. The ends are then closed neatly by folding, and a label is placed on each end.

Capacity: 30 to 45 per minute
depending upon the character of object to be wrapped.

Articles such as those pictured above may be wrapped on the Anderson Wrapping Machine, Model WR.

Model AA Machine takes the required amount of Cellophane from a roll, the cardboard disc from a stack, the bottom label from a stack, and makes these materials entirely automatically into a Cellophane bag.

The bags may be single-wall plain transparent or moisture-proof, or double-wall—that is, with an inner sheet of M. P. Cellophane and an outer sheet of P. T. Cellophane.

Round, square, rectangular, or bags of other cross sections can be made on the machine.

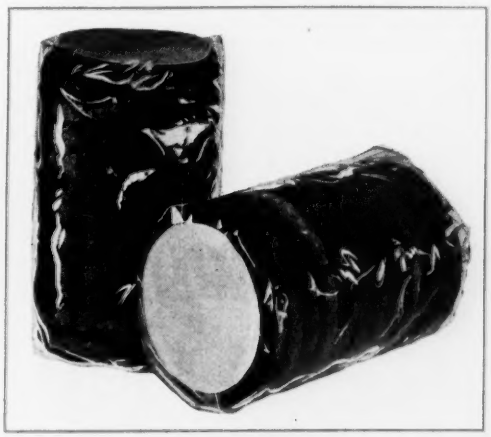
Capacity: 35 to 45 bags per minute

Bags of the type used in the packages pictured above are made on the Anderson Cellophane Bag-Making Machine, Model AA.

In the **Model WC Machine,** the required number of cookies are placed in a pocketed conveyor by an operator, from which they are taken automatically and wrapped, the ends folded neatly, and a label placed on each end.

Plain Transparent or Moisture-proof Cellophane can be used on this machine.

Capacity: 30 to 40 packages per minute.



The packages of cookies shown are wrapped on the Anderson Cookie-Wrapping Machine, Model WC.

Note: A device for registering printed rolls may be added to any of these three machines.

Other articles packaged on Anderson Machines include Life Savers Mints, Ticonderoga and Eagle Pencil Boxes, Tootsie Rolls, General Electric Fuses, Gauze Bandages in envelopes and lined cartons, and hundreds of others. Ask the Anderson engineers to help you solve your machine packaging problems.

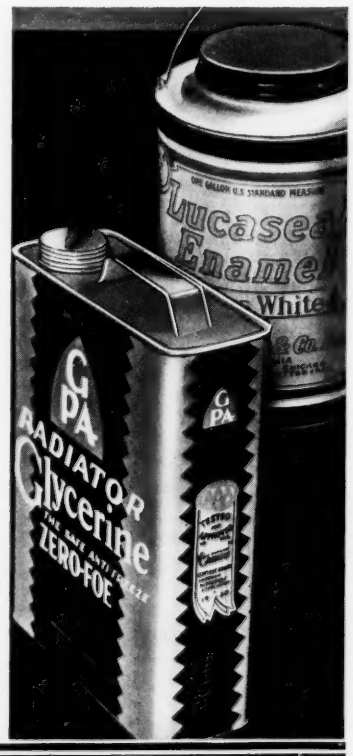
"HOW'S IT PACKAGED"?

. . Asks the Dealer!

HE AIMS at *consumer* interest . . so does "EMPECO". . and sets a sales pace with Container *style* . . with display *tone* and *finish!*

Appraise your own product to a buying-minded public. Identify it by a sales-inviting . . sales-compelling Package. "EMPECO"-MADE Containers such as these . . denote VERSATILITY in producing trade appeal.

Whatever the product . . Quality-made by you . . Quality-packaged by "EMPECO". . it will Sell!



METAL PACKAGE CORPORATION

Sales and Executive Offices: 110 E. 42nd St. New York City

PLANTS) New York City · Baltimore · Brooklyn

THE FISCHER CAN COMPANY DIVISION

Hamilton, Ohio

TO SELL MORE . . . . SHOW MORE

The buyer of today is more receptive to a well-designed and constructed package. The right box is a maker of sales. It attracts attention and gives those who see your package the assurance of quality.

Careful competent construction and design in the creation of decorative boxes, fancy containers and display specialties is the reason why New England Boxes are adding daily to sales totals. Samples gladly furnished on request — our samples submitted result in 83% sales.

Look into this folder. it will show you how to sell more.

SMART PACKAGES

FOR SURE PROFITS

THE WAY TO SELL MORE IS CLEARLY ILLUSTRATED IN THIS FOLDER

The line we manufacture includes LEATHER COVERED, STUCCO FINISHED, PAPER COVERED, LACQUERED AND GESSO BOXES OF ALL SHAPES AND DESIGNS, COMPLETELY LINED AND TRIMMED.

Draw on our experience. Let our designers serve you.

NEW ENGLAND BOX COMPANY

GREENFIELD, MASS.

BRANCH OFFICES

BOSTON PROVIDENCE CHICAGO SPRINGFIELD NEW YORK

"HOW'S IT PACKAGED"?

. . Asks the Dealer!

HE AIMS at *consumer* interest . . so does "EMPECO". . and sets a sales pace with Container *style* . . with display *tone* and *finish!*

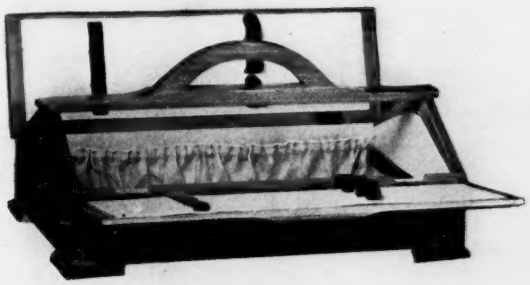
Appraise your own product to a buying-minded public. Identify it by a sales-inviting . . sales-compelling Package. "EMPECO"-MADE Containers such as these . . denote VERSATILITY in producing trade appeal.

Whatever the product . . Quality-made by you . . Quality-packaged by "EMPECO". . it will Sell!

METAL PACKAGE CORPORATION

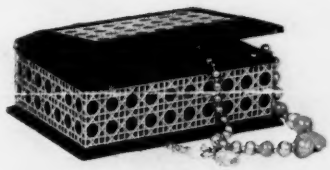
Sales and Executive Offices: 110 E. 42nd St. New York City

PLANTS) New York City · Baltimore · Brooklyn
THE FISCHER CAN COMPANY DIVISION
Hamilton, Ohio

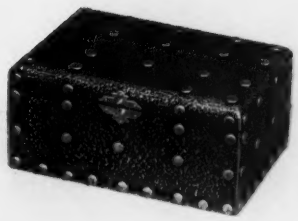


Colonial Sewing Chest - open, in lacquers

Maple Finish, Colonial Sewing Chest - closed

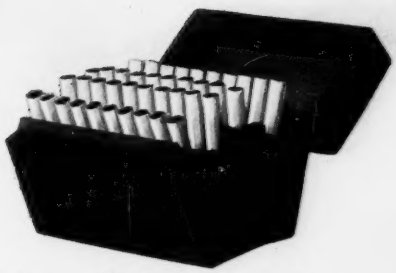


Jewel Case in Ebony and Cane



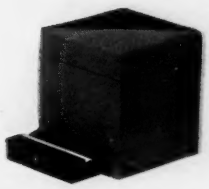
Stationery Box, Metallic Luster

Genuine Morocco, Gold Stamped, Cigarette Box - closed



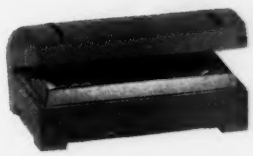
Genuine Morocco, Gold Stamped, Cigarette Box - open

Italian Treasure Chest - Stippled and Gessoed

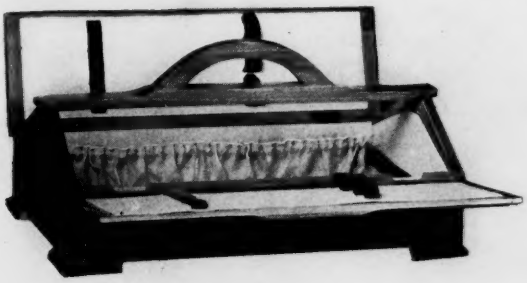


Red and Black Trick Cigarette Humidor in lacquer

Blue and Gray Silverware Chest

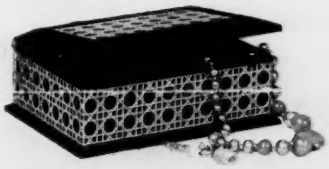


Red Lacquered, Domed Top, Cigarette Container

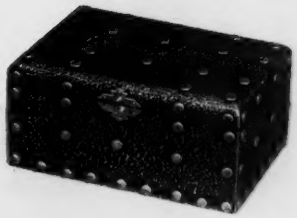


Colonial Sewing Chest - open, in lacquers

Maple Finish, Colonial Sewing Chest - closed

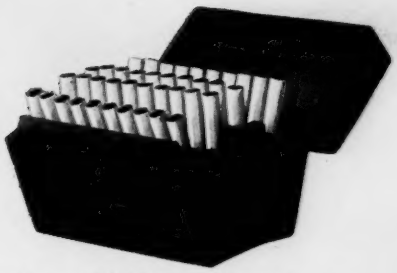


Jewel Case in Ebony and Cane



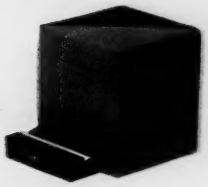
Stationery Box, Metallic Luster

Genuine Morocco, Gold Stamped, Cigarette Box - closed



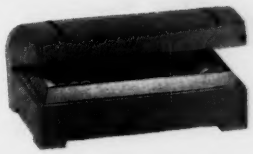
Genuine Morocco, Gold Stamped, Cigarette Box - open

Italian Treasure Chest - Stippled and Gessoed



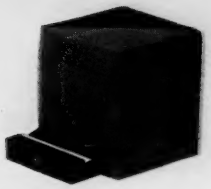
Red and Black Trick Cigarette Humidor in lacquer

Blue and Gray Silverware Chest

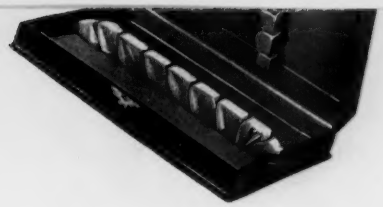


Red Lacquered, Domed Top, Cigarette Container

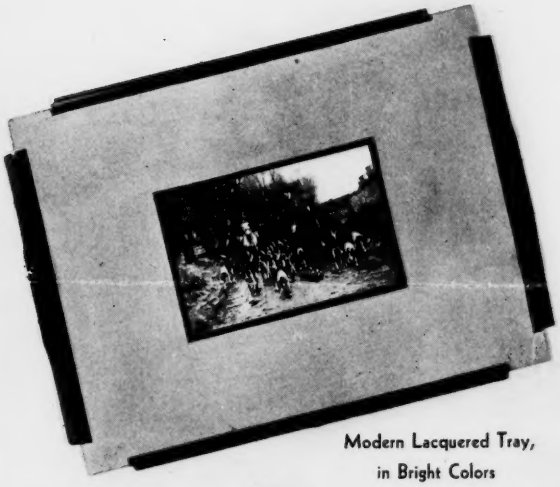
Italian Treasure Chest-
Stippled and Gessoed



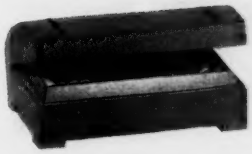
Red and Black Trick Cigarette Humidor in lacquer



Blue and Gray Silverware Chest

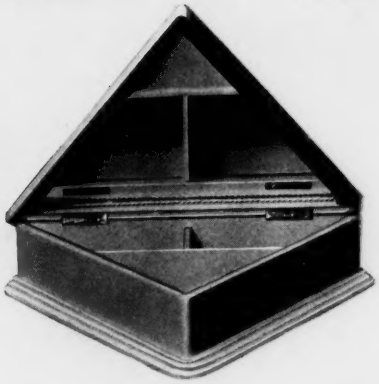


Modern Lacquered Tray,
in Bright Colors



Red Lacquered, Domed Top, Cigarette Container

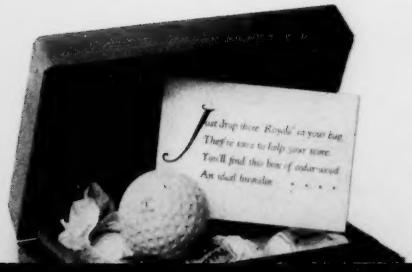
Stippled Candy Box and Flower Basket



Tri-cornered Lacquered Vanity Case

Stationery Box, in the Modern Way

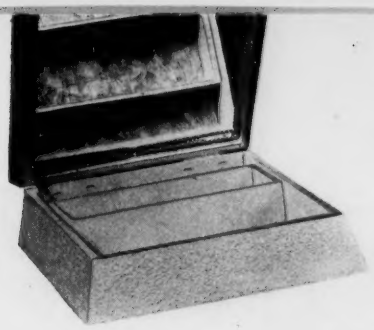
A Stippled Vanity in Colors- open
a large volume retail number



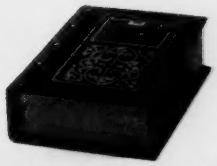
Mother's Day Book Box, for Candy

Tri-cornered Lacquered Vanity Case

Stationery Box, in the Modern Way

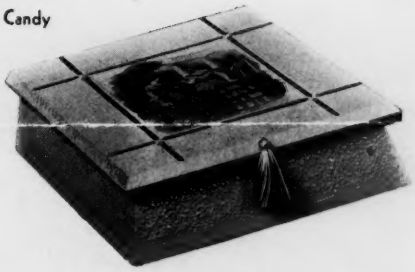


A Stippled Vanity in Colors- open
a large volume retail number

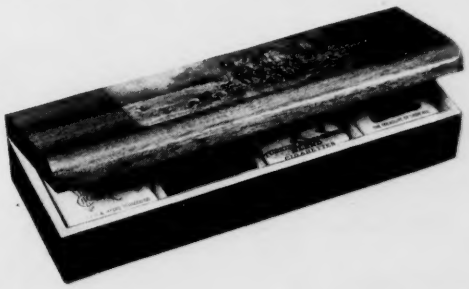


Mother's Day Book Box, for Candy

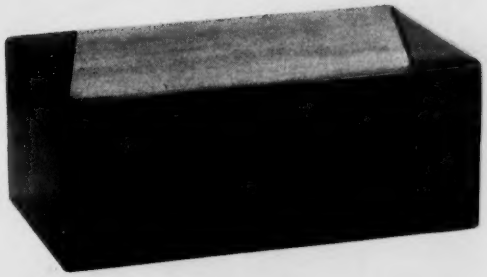
The Double Gift, for Golfer and Smoker, natural finish



A Stippled Vanity - closed



Genuine Mahogany Cigarette Chest, for less than half a dollar



Two-tone Walnut Cigarette and Cigar Humidor

TO SELL MORE——SHOW MORE

As creators of decorative boxes, fancy containers and display specialties, our designs and samples are at your disposal.

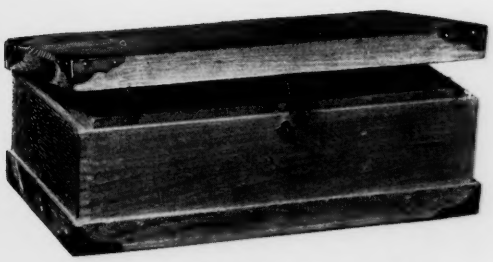
This folder will show the comprehensive and complete line which we manufacture, including leather covered, stucco finish, paper covered, lacquer and gesso boxes of all shapes and designs. Draw on our experience—Ask us to create a new number.

THE NEW ENGLAND BOX COMPANY

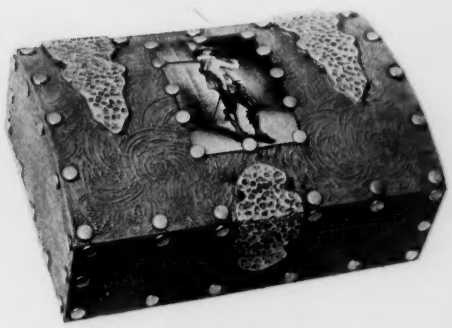
GREENFIELD, MASS.

BRANCH OFFICES:

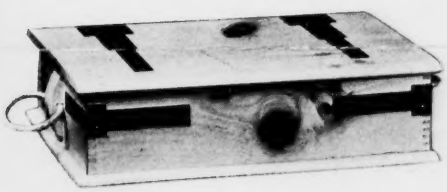
BOSTON CHICAGO NEW YORK



Cape Cod Sea Chest, for Trinkets, stain finish

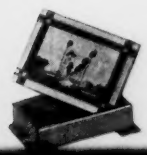


Spanish Cavalier Chest in Red and Gold, for Candy



Modernistic Pine Chest, Natural Finish

Queen Ann Serving Tray, in Lacquer



Modernistic Pine Chest, Natural Finish

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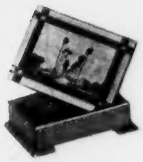


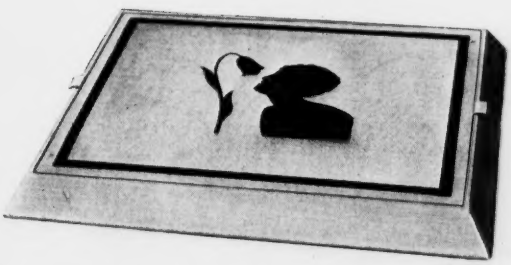
A Beautiful Little Box

For Kids' Candy

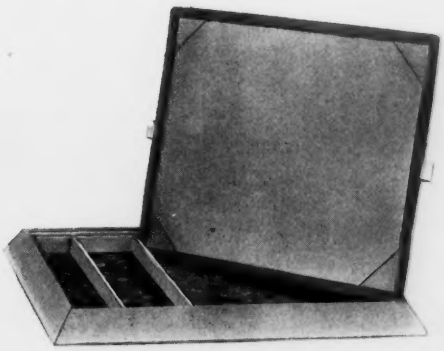
Modern but Low-Priced

Low-Priced Mahogany Serving Tray

Unusual Shapes are possible



Lap Desk Set for Stationery in a Variety of Coverings and Linings closed

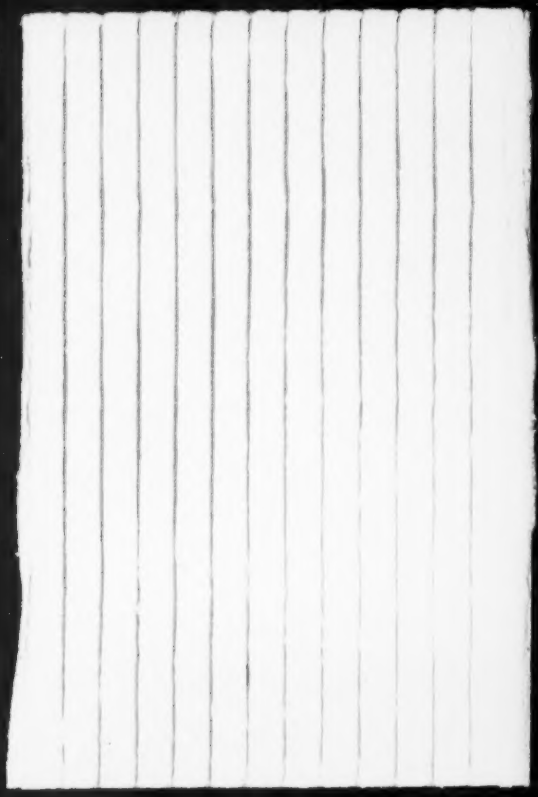


Lap Desk Set for Stationery in a Variety of Coverings and Linings open

A Well Known Display

A Combination Stock Cabinet and Display for Combs

• NEW "SPEED" PACKA



BILLOW PAK
REG. U.S. PAT. OFF. AND FOREIGN COUNTRIES
CREPE WADDING

Billowpak

Atomizers
Beads
Candles
Cosmetics
Drugs
Food products
Fruits
Glassware
Jewelry
Optical goods
Patent medicines
Perfumes
Scientific products
Silverware
Watches
Window displays

Fastest packing—lightest weight—

BILLOWPAK and Kimpak are both made of feather-light cellulose wadding. For some products you will prefer the air-cushioned Billowpak. For others, Kimpak, highly absorbent, soft, resilient.

Billowpak can be scored and die-cut, to make a decorative, protective, absorbent liner. Furnished in white —or flesh, canary or green; also in practically any deep shade. The backing may be white, or any of our suitable colored stocks.

Kimpak comes in rolls, sheets or pads of specified sizes. The sample above is 20-ply, tissue-backed,

utm

punch
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backin
or jute

Both
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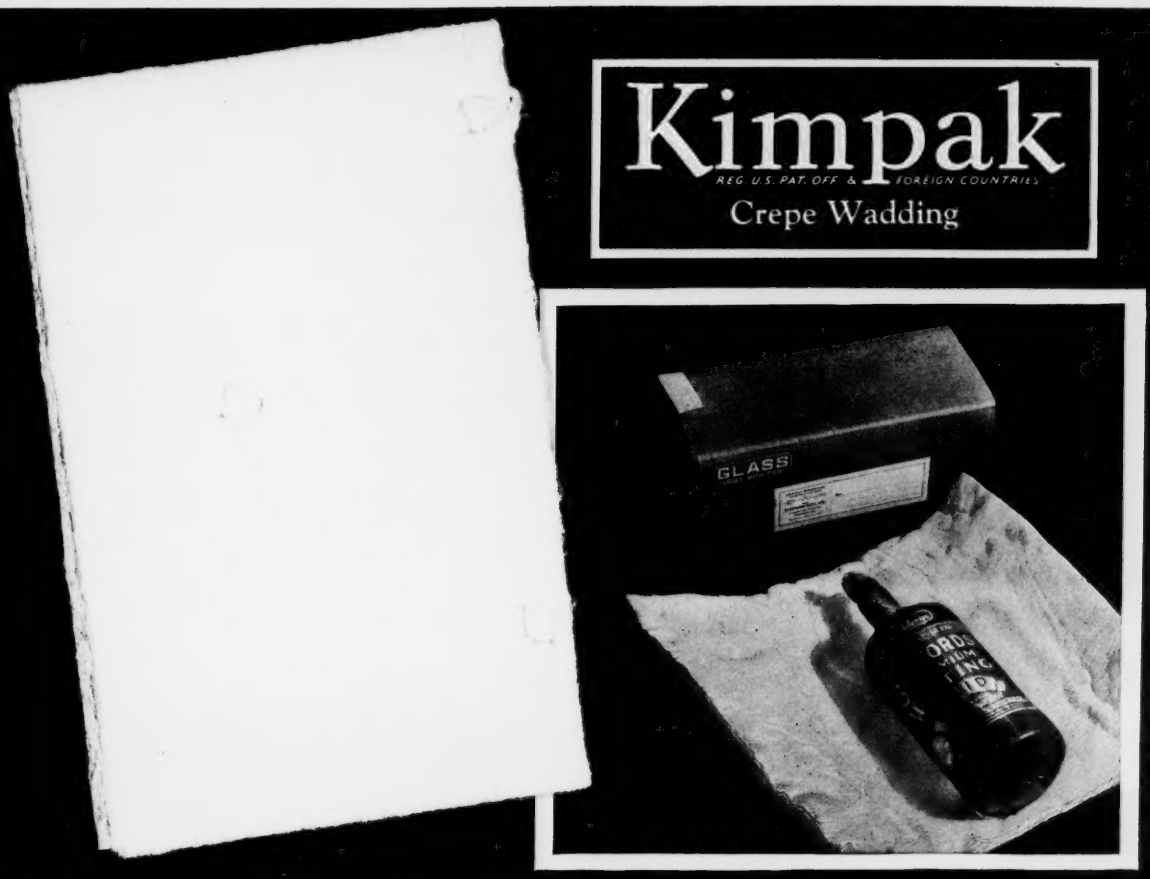
absorb

• KIMBERLY-CLARK COR

8 SOUTH MICHIGAN AVENUE, CHICAGO 12

XUM

CKAGING ECONOMY •



utmost protection—super absorbent

punch-embossed. It can be obtained in as few or as many plies of thickness as desired; either plain or with backing of tissue, kraft, parchment, or jute liner.

Both Billowpak and Kimpak exceed parcel post requirements for absorbency.

We will be glad to have you send us samples of your product as now packed. We will repack for fastest, safest, most economical packing, and return to you promptly with estimate on the material required. Or we will be glad to send you samples of Billowpak and Kimpak for *you* to try.

Kimpak

Airplane parts
Auto accessories
Caskets
Clocks
Door hardware
Furniture, wood
Furniture, metal
Instruments
Lamps
Liquids
Pharmaceuticals
Radio cabinets
Radio tubes
Refrigerator cabinets
Store fixtures
Stoves

ORPORATION MANUFACTURERS NEENAH, WISCONSIN •

122 EAST 42nd STREET, NEW YORK CITY

TRADE MARK

NEWARK P. & P. P. COMPANY

WAXED PAPERS FOR
CLEANLINESS AND PROTECTION

Modern Packaging demands visibility, neatness, plus complete protection against contamination.

AQUALEEN, a self-sealing, transparent, super-moisture, and greaseproof wrapper, assures full protection, making a neat and attractive package.

WHITE **TRANSEEN** is a glossy, transparent, self-sealing wrapper, for use in automatic wrapping machines and as a carton liner.

CARTON **TRANSEEN** is made expressly for wrapping cartons, protecting both contents and carton.

AQUALEEN—WHITE **TRANSEEN**—CARTON **TRANSEEN**—in sheets or rolls, plain or printed.

For products hard to package—**Paraleen** bags—plain or embossed, printed in 1, 2, or 3 colors—

We specialize in waxed papers for—

Bread, Cakes, Crackers, Cereals, Candy, Drugs, Meats, Tobacco, Hardware, Delicatessen and Dairy Products, etc.

in fact, there is a grade for every need.

Ask us to solve your waxed paper problems.

Newark Paraffine & Parchment Paper Co.

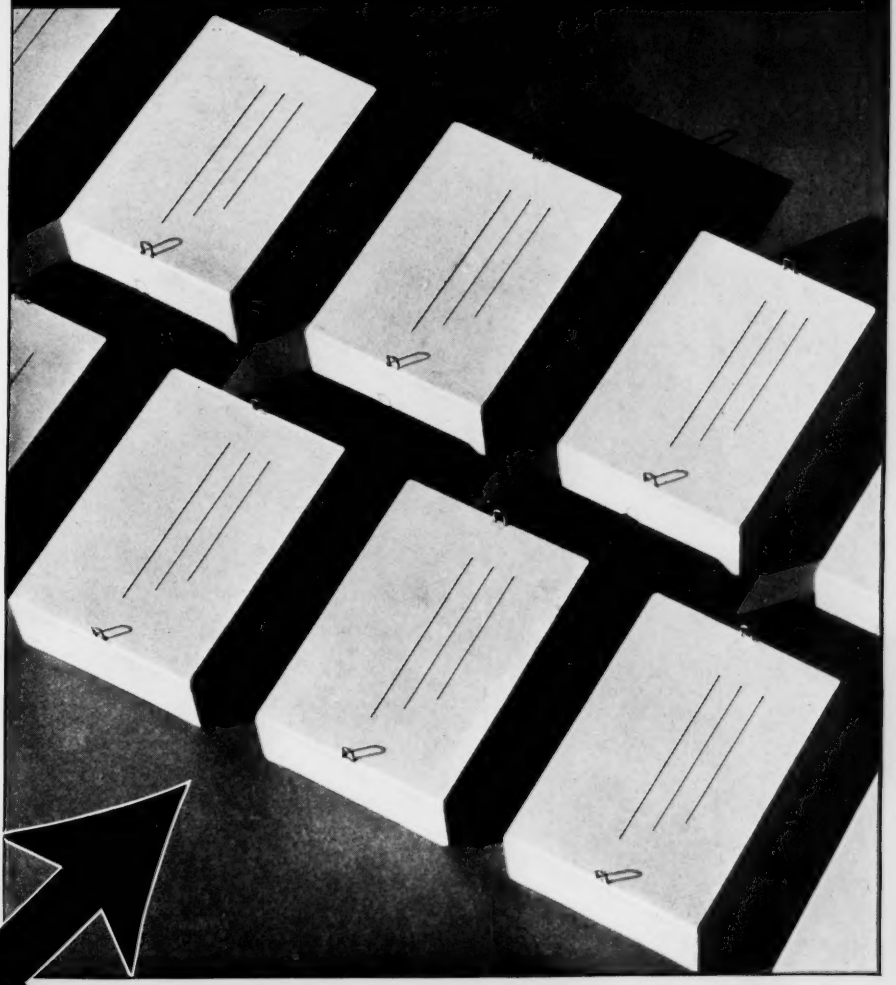
N. Y. Office: 1071 6th Ave.

Main Office and Mill:
46 Jelliff Avenue, Newark, N. J.

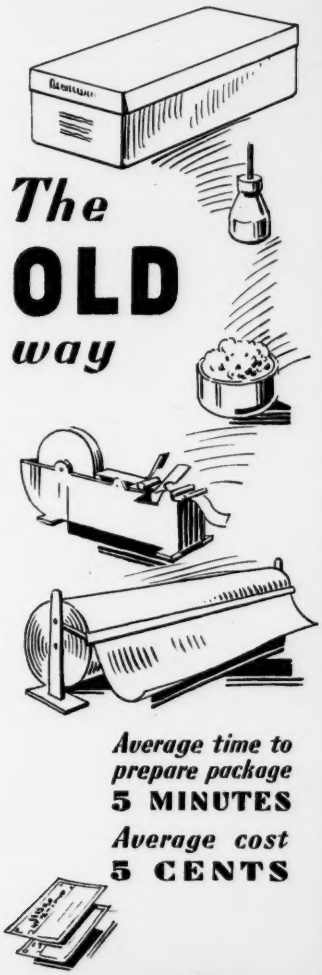
Mill: Pittston, Pa.

Cut ½ from your mail packaging cost

The MASON way



The OLD way



Average time to prepare package
5 MINUTES
Average cost
5 CENTS

Average time to prepare package
1 MINUTE
Average cost
2½ CENTS

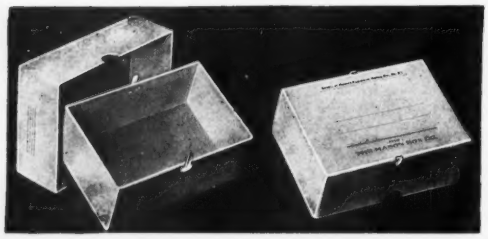
MASON
MODERN MAILERS

FACTORIES: ATTLEBORO FALLS, MASS. PROVIDENCE, R. I. LONDON, ONTARIO

NEW YORK OFFICE
175 FIFTH AVENUE

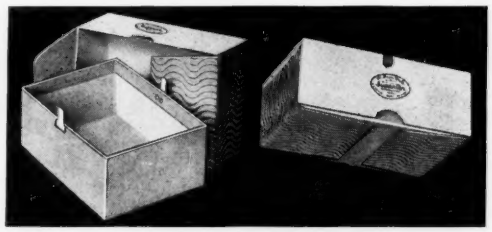
CHICAGO OFFICE
55 E. WASHINGTON ST.

❖ A MASON MODERN MAILER ❖
FOR EVERY POSTAL SHIPPING REQUIREMENT



MASON PARCEL POST BOX For 35 years the standard for postal shipments now wholly new and improved. Covered with light gray paper with inside lining to match. Made from special mailing box stock which combines exceptional lightness with maximum strength. Requires no wrapping or tying. Approved by the Post Office Department. New low prices. ❖ ❖ Carried in 40 stock sizes and special sizes to order. ❖ ❖ ❖

MASON FOURTH CLASS BOX This box is made to meet the demands of shippers using sealed Third and Fourth Class Mail. Made from strong rugged stock covered with light gray paper. In addition to fasteners on sides of box, it has gummed flap at each end which allows it to be sealed. ❖ ❖ Carried in 20 stock sizes and special sizes to order. ❖ ❖ ❖



MASON LETTER BOX The greatest improvement in mail packaging in years is this two compartment container which allows a first class letter and second, third or fourth class matter to be mailed together and reach their destination together. The only set-up container of its kind for merchandise or catalogue. Requires no wrapping, no tying, no addressing. Made to order in lots of 500 or more to meet individual requirements.

MASON SCREW CAP CONTAINER A new type of mailing tube for the mail shipment of liquids which has numerous advantages over other styles. A convolutely wound tube with cap threading directly on body of tube. A much stronger construction and tighter seal against liquid. An improved tube at lower price. Carried in 14 stock sizes and to order ❖ ❖

ABOVE ARE PICTURED FOUR ITEMS FROM THE MANY STOCK CONTAINERS LISTED IN OUR NEW CATALOGUE. THE INGENIOUS CONSTRUCTION, CONCEALED REINFORCEMENTS AND MATERIALS MADE TO OUR EXACTING SPECIFICATIONS, PROVIDE MAXIMUM SECURITY WITH POSITIVE ECONOMY IN EVERY MASON CONTAINER.

Send for our thirty-two page catalogue

THE MASON BOX COMPANY

PROVIDENCE, R. I. FACTORY
69 SPRAGUE STREET

MAIN OFFICE and FACTORY
ATTLEBORO FALLS, MASS.

LONDON, CANADA FACTORY
618 DUNDAS STREET

NEW YORK, N. Y. ❖ 175 Fifth Ave.
PHILADELPHIA, PA. ❖ 1731 N. 18th St.
PITTSBURGH, PA. ❖ 802 May Bldg.

CHICAGO, ILL. ❖ 55 E. Washington Street
ROCHESTER, N. Y. ❖ Cutler Building
BALTIMORE, MD. ❖ Hanover & Baltimore Sts.

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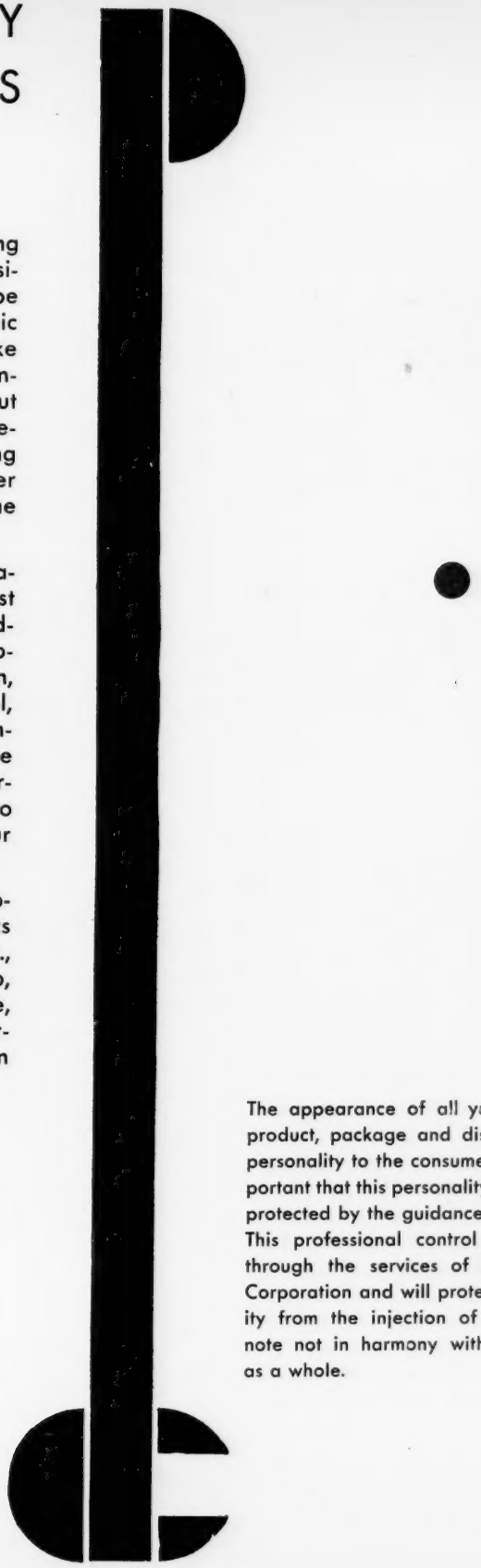
BOSTON, MASS. ❖ 27 School St.
ST. LOUIS, MO. ❖ 7227 Colgate Ave.

CREATIVE ABILITY THAT PRODUCES SALES



Balance your books with IDEAS. In manufacturing or selling, external forces which affect every business bring a flow of emergencies that can only be met with new ideas. The pressure of economic trends, new discoveries and style changes make ideas a necessity for business leadership. As consultants and designers we offer you that vital but invisible asset to business vitality—creative resourcefulness and the outside viewpoint resulting in more desirable merchandise for the consumer and increased sales for the manufacturer—the logical result of improved commodities.

The Package Design Corporation is an organization of specialists equipped and qualified by past experience to serve its clients in a creative or advisory capacity in various ways from the conception of a name, style, trade mark, package design, product design, package analysis, color counsel, style trends, method of packaging, physical construction of packages and styling of an entire line or single product for retail sale, including merchandising and display counsel when related to our basic service. We do no manufacturing. Our ideas and opinions are unbiased.

We design packages and style products for reproduction in all materials, including moulded plastics such as Bakelite, Durez, Beetle, Lumarith, etc., glass (hand or machine blown), metal (die stamp, moulded or extruded), wood, transparent cellulose, and paper, including printed or lithographed cartons, tight or loose wraps, set-up boxes for modern machine production or bench work.

The appearance of all your merchandise, product, package and display, form your personality to the consumer. It is vitally important that this personality be inspired and protected by the guidance of one director. This professional control is offered you through the services of Package Design Corporation and will protect your commodity from the injection of any discordant note not in harmony with its personality as a whole.

PACKAGE DESIGN CORPORATION, 8 MURRAY ST., NEW YORK

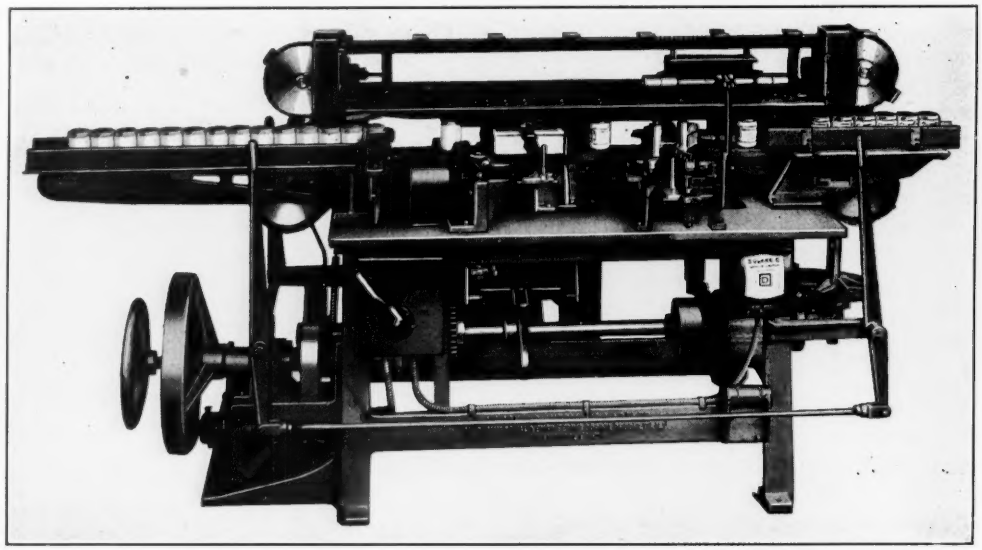
"McDONALD" Straight AUTOMATIC

A STRAIGHT LINE IS THE SHORTEST DISTANCE BETWEEN TWO POINTS
FILLER → CAPPER → LABELER → CARTONER

STRAIGHT THROUGH → STRAIGHT THROUGH → STRAIGHT THROUGH

THESE LABELING MACHINES are STRAIGHT-LINE type (not rotary). They automatically feed the package, or container, and apply paper labels on bottles, boxes, etc.

All labelers are specially designed, "tailor made" machines, built to fit your particular type and size of package. They are not stock machines and do not have standard movements that are very often a hindrance to speed and to first class, accurate, clean labeling. For ten years they have labeled many nationally known products and are thoroughly established and noted for their extreme simplicity, speed and perfect workmanship.



All-Around Labeler

ALL-AROUND LABELER (**ABOVE**)—Applies one label all around the body, or the body and neck of bottles. It is also of the STRAIGHT-LINE design employing the latest and most improved method for applying gum over the entire surface of the label and for lapping it accurately.

SPOTTER—Labels round bottles with raised lettering by automatically feeling the letters and turning the bottle to the proper position before applying the label. Your trade mark in the glass means a great deal if you can properly and economically apply the label in the right place. This machine does it.

Important Features: Does not require inspectors to complete the job. Adjustable for different sizes in 10 minutes. Gums the entire surface of the label.

Specifications—Conveyors—34 in. above the floor. Length—7 ft. overall. Weight—1400 to 2000 lbs. Motor—½ H. P.

· McDONALD ·
ENGINEERING CORP.

220 VARET STREET, BROOKLYN, N.Y.

LOS ANGELES 443 So. San Pedro St. · · · · · · · · LONDON Windsor House, Victoria St. S.W.1 · · · · · · · · CHICAGO 1112 Merchandise Mart

Line LABELERS

"WEEKS"

STRAIGHT THROUGH ⟶ STRAIGHT THROUGH ⟶ STRAIGHT THROUGH

A STRAIGHT LINE IS THE SHORTEST DISTANCE BETWEEN TWO POINTS
FILLER ⟶ CAPPER ⟶ LABELER ⟶ CARTONER

McDONALD ENGINEERING CORPORATION

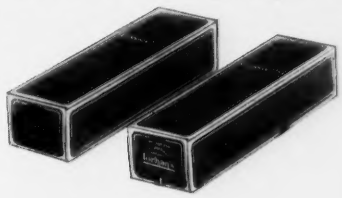
DIFFERENT FROM ALL OTHERS IN LABEL APPLICATION

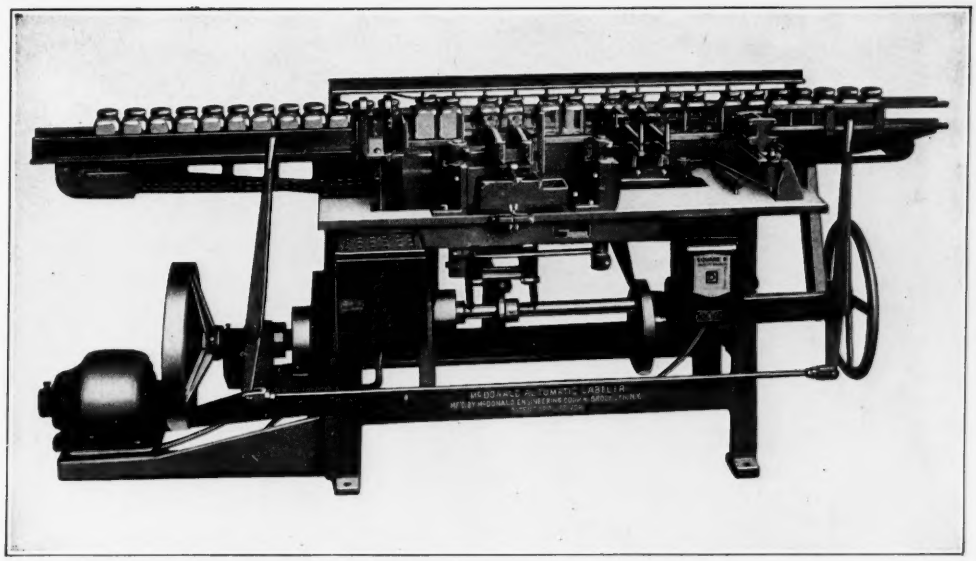
McDonald labeling machines do not employ any intermediate means for transferring a gummed label from the label magazine to the surface to be labeled. The magazine itself deposits the label on the package. Therefore, the labels are registered accurately and are applied in a straight, clean manner.

SINGLE LABELER—This machine applies spot labels on all packages, and one label on three sides. A neck label attachment may be added when desired. Speeds range from 30 to 80 per minute.

FRONT AND BACK LABELER—Applies two labels simultaneously on opposite sides or two labels all around the container, or one label if desired. Speeds range from 30 to 80 per minute.

DUPLEX LABELER—Is both of the above types but labels two containers or packages simultaneously without increasing the machine speed. It is two labelers in one and is a slow running, long-lived machine with a labeling speed up to 144 containers or 288 labels per minute. It is designed to keep pace with the modern high speed cartoning and wrapping machines and eliminates the necessity of adding another labeler, another operator and additional floor space for doubling your production.





Duplex Labeler—Labels Two Containers Simultaneously

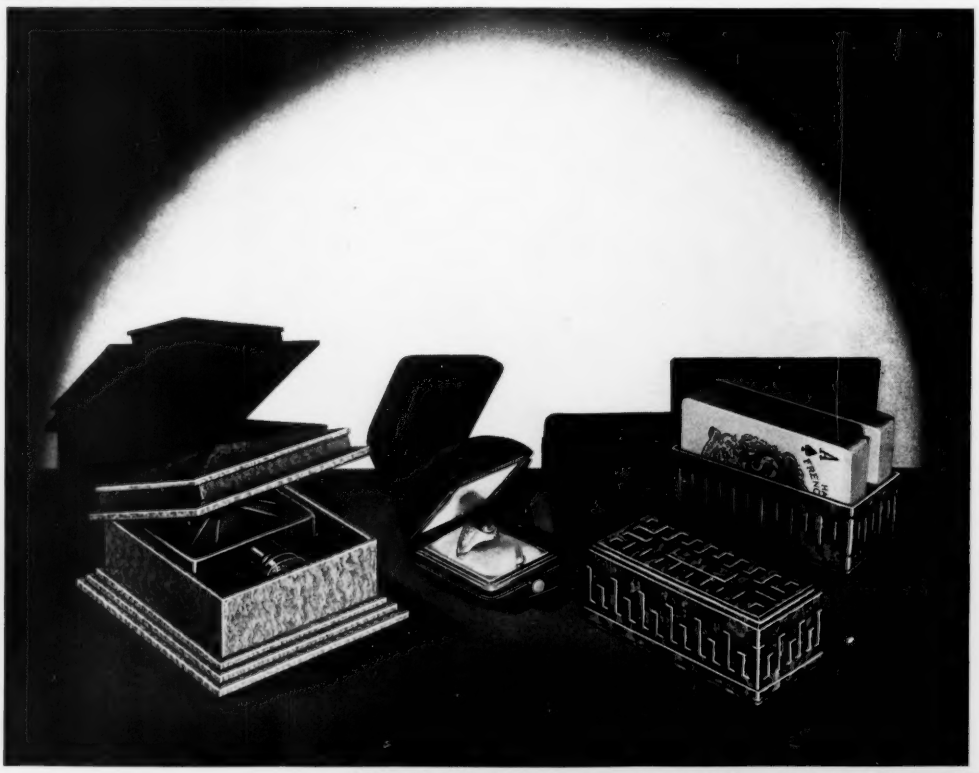
MOLDING SALES WITH

Shoppers of to-day are not easily satisfied. Modern production and competition offers them an enormous display from which to select that which pleases them.

Putting it bluntly, to make sales this year you have to give your customers something finer, something better than they've been getting. The same old "average" merchandise won't pull.

To catch the shopping eye your merchandise must be unusual. To make a sale it must have quality. And the container for that merchandise must be even more unusual; must have eye appeal and attractiveness to an unusual degree.

More and more manufacturers of packaged products are turning to Norloc for containers—for containers molded of Bakelite, Durez, Lumarith or Aldur. Molded plastic containers have a hard lustrous surface that requires no buffing, enameling or lacquering. Any design, any form may be reproduced in plastics. And every color may be had.



Norloc products are unlimited in their adaptability to various industries. Shown here are molded cosmetic, jewelry and novelty cases.

Molders of Plastics

Bakelite - Durez - Lumarith - Aldur

Norloc

Norton Laboratories, Inc.

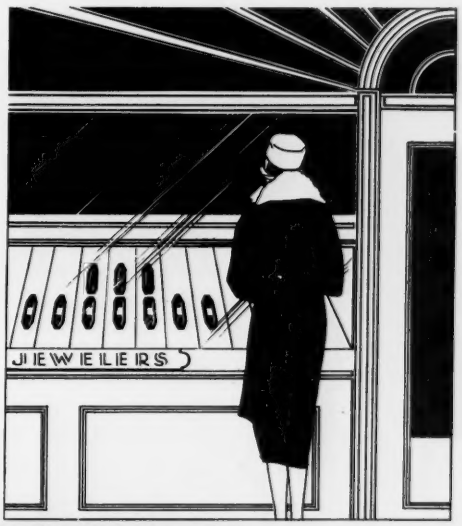
LOCKPORT, N. Y.

NORLOC CONTAINERS

There's an inherent beauty in these new Elgin Boxes. Refinement and good taste in design give them undeniable charm. The lustrous gold surface makes for ideal window display. Beauty and utility have been combined for Elgin with these Norloc Molded Boxes. If you are seeking a distinctive and artistic creation—something removed from the unusual and common; it will pay you to consult with Norloc Package experts.

Norloc Molded Boxes will attract attention—will make people stop and look. They'll make it easier for your salesmen to make sales and stimulate new business.

Send your product and data to us. Our engineering department and package experts will be glad to cooperate with you.



Jewelry, cosmetics and many other products show to supreme advantage in Norloc Molded Boxes. Nationally known manufacturers have discovered that it increases sales of their products considerably.

Norloc

Norton Laboratories, Inc.
LOCKPORT, N. Y.

Molders of Plastics
Bakelite - Durez - Lumarith - Aldur

Oneida Bags for sanitary protection and a crisp looking package—plus Oneida Service for your Better Packaging in 1931.

Making Bags NOW for Fourteen Industries.

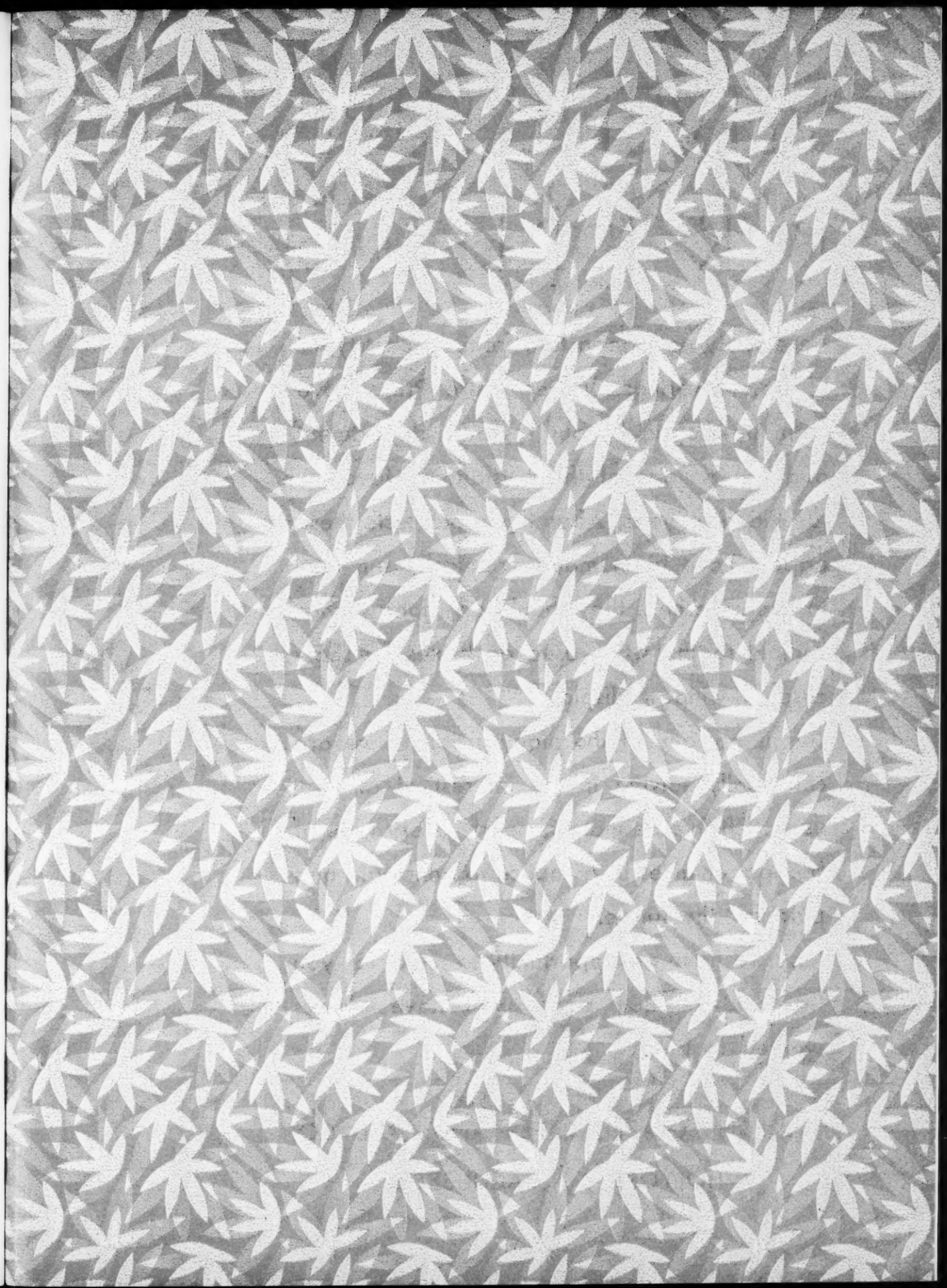
Specializing in embossed or plain glassine bags of all types—printed in one, two or three colors—duplex bags for coffee, teas, etc. Manila and Kraft mailing envelopes and carton liners.

Samples of Oneida Quality Bags on request.

ONEIDA PAPER PRODUCTS, Inc.

MAKERS OF SPECIALTY PAPER BAGS

BUSH TERMINAL BUILDING NO. 10
BROOKLYN, N.Y.



VELVET LUSTRE PRINTS

An entirely new departure from all past types of box coverings. Velvet Lustre Prints have been developed by our research department and will be one of the outstanding favorites for the new year. After numerous tests these papers have been made practically sun fast, to a point where they should give long service without fading when used on boxes for show case or window display.

This is but one of the many problems we are continually solving in the interest of all box users. Fifty years making nearly every type of box paper gives us a chance to anticipate and plan for the future.

May we have an opportunity to make for you the kind of box paper you have always wanted to buy.

HAMPDEN GLAZED PAPER AND CARD CO.

HOLYOKE, MASSACHUSETTS

NEW

SPENCER CELLOPHANE PACKAGER

THE GREATEST INNOVATION IN THE PACKAGING INDUSTRY

PACKS LOOSE PRODUCTS

Transparent Cellulose is an ever increasing factor in the merchandising of today. Every progressive manufacturer is striving to attract the attention of the consumer by mirroring his product.

One of the greatest aids to packaging products in transparent material and one of the greatest innovations in packaging machinery, The Spencer Automatic Packager, is now being offered to users of Cellophane or any other translucent cellulose.

THE MACHINE

This machine is completely automatic, requiring absolutely no hand labor. It takes your product, be it loose, free-flowing or bulk and with one operation makes a transparent container, fills it, seals it and you have a secure, tightly wrapped, hermetically sealed package. It does not harm or affect your product in any way in the process of packaging and enhances the appearance of your product considerably.

OPERATION

The Spencer Automatic Cellophane Packager can be quickly adjusted for any product for it has a size variation of one inch to six inches in height and $2\,^1/_4$ inches to $2\,^3/_4$ inches in diameter. The machine can be fed from either single or double roll. Its average output is from 1000 to 1200 containers per hour.

SAVINGS

What makes the Spencer Automatic Packager more unique is its savings to users. By using the translucent cellulose paper without waste it saves in paper costs. It saves hand labor by eliminating handwork entirely. The compactness of the machine conserves working space. The tight, compact package the machine produces saves storage and shipping costs and the measuring device insures a correct weight. The saving in carton costs alone will more than pay for the machine.

COST

The cost of the Spencer Packager has been calculated at from $^1/_4$ to $^1/_3$ of a cent per package. This includes all materials and equipment for the operation of the machine. The cost is negligible when the advantages and savings of the machine are considered. In fact, the machine more than pays for itself.

PAYMENT BASIS

The Spencer Packaging Machine will earn you a profit while it pays for itself. For better packaging, for greater economy, for greater sales and for further information, write to

INTERNATIONAL
PACKAGING MACHINE CO.

130 NO. WELLS ST.
CHICAGO, ILL.

White Star Import Corp.
20 E. 12 St., New York City

PETERS MACHINERY COMPANY

GENERAL OFFICE AND FACTORY 4700 RAVENSWOOD AVE

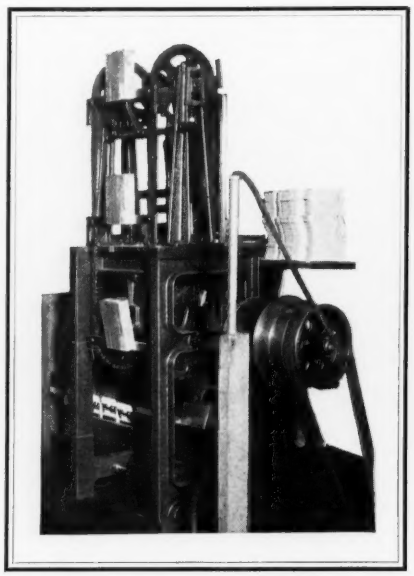
CHICAGO.U.S.A

PRODUCTS:

Package Forming and Lining Machines, Package Folding and Closing Machines, Package Wrapping and Labeling Machines and other special automatic equipment for peculiar Packaging Problems.

PETERS PACKAGE FORMING AND LINING MACHINE:

The Forming and Lining Machine takes the carton blank and a superimposed sheet of paraffine, parchment or other protective paper suitable for the goods to be packed and simultaneously forms them into an open receptacle, interfolding the lining with the flaps so that they become an integral part of each other and locks the tucking flaps into place. This forms a smoothly lined receptacle without any projecting edges or folds so that the contents may be readily inserted and without any disarrangement of the protective lining. Further, the lining, by reason of the peculiar interfolding, is so interlocked with the flaps of the carton that it can be withdrawn from the carton. There is no paste, glue, or other adhesive used in the assembling of this receptacle.



Peters Package Forming and Lining Machine

The machine is equipped with three-step cone pulley for belt drive or direct drive equipment, including motor. The speed of the machine may be varied to meet the requirements of the filling or packing operations, and a conveyor drive pulley is made an integral part so that the cartons can be conveyed by canvas belt to any desired location.

This machine will replace from five to seven hand operators and effects an annual saving of about $3500.00.

Forms and lines 40 packages per minute. Requires but one operator. Weight 1000 pounds; floor space, 4′ x 4′. One-quarter horsepower to drive.

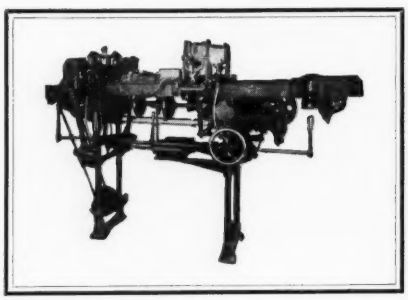
PETERS PACKAGE FOLDING AND CLOSING MACHINE:

The package, after being filled either by hand or, where the nature of the goods warrants, by a filling machine, is now ready to be folded and closed on this machine. Our automatic filling machine is not shown on this page, due to the variety of construction depending on the different articles to be packed. The folding machine takes the filled but unclosed package and automatically folds the up-standing portions of the lining and carton so that the goods are completely enveloped by the lining, then closes down the cover and inserts the front flap, making a rigid and firm package.

The machine is entirely automatic and does not require an operator, but we have found it desirable that the inspector be stationed at this machine to see that the packages are properly and neatly filled. The inspector does not need to touch the machine, however.

If desired, an attachment can be furnished to place an advertising slip or other printed matter into the package before the cover is closed down.

Where no outside wrapper is required and the carton itself is printed or lithographed, a Sealing Attachment can be furnished to place a seal of any desired size across the edge of the package so that it cannot be opened without destroying such seal.



Peters Package Folding and Closing Machine

We also build a duplex folding and closing machine, having double the capacity of the single. The single machine replaces from five to seven hand operators and effects an annual saving of about $3500.00.

Folds and closes 40 packages per minute. One operator (optional). Weight 1000 pounds. Floor space required, 2′ x 6′. One-quarter horsepower to drive.

Package Designers for the Nation's *Leading* Products

Fairchild designs lead the way in attractiveness and selling punch.

The number of manufacturers we serve, is virtually a list of America's "400" in manufacturing. In variety, almost every merchandise channel is represented—Perfume, Candy, Toilet Goods, Shoes, Toys, Foods, Dry Goods, Writing Implements, Hardware, etc.

Send for Samples of our work

Originating, Designing and Lithographing Wraps & Labels. Box Making

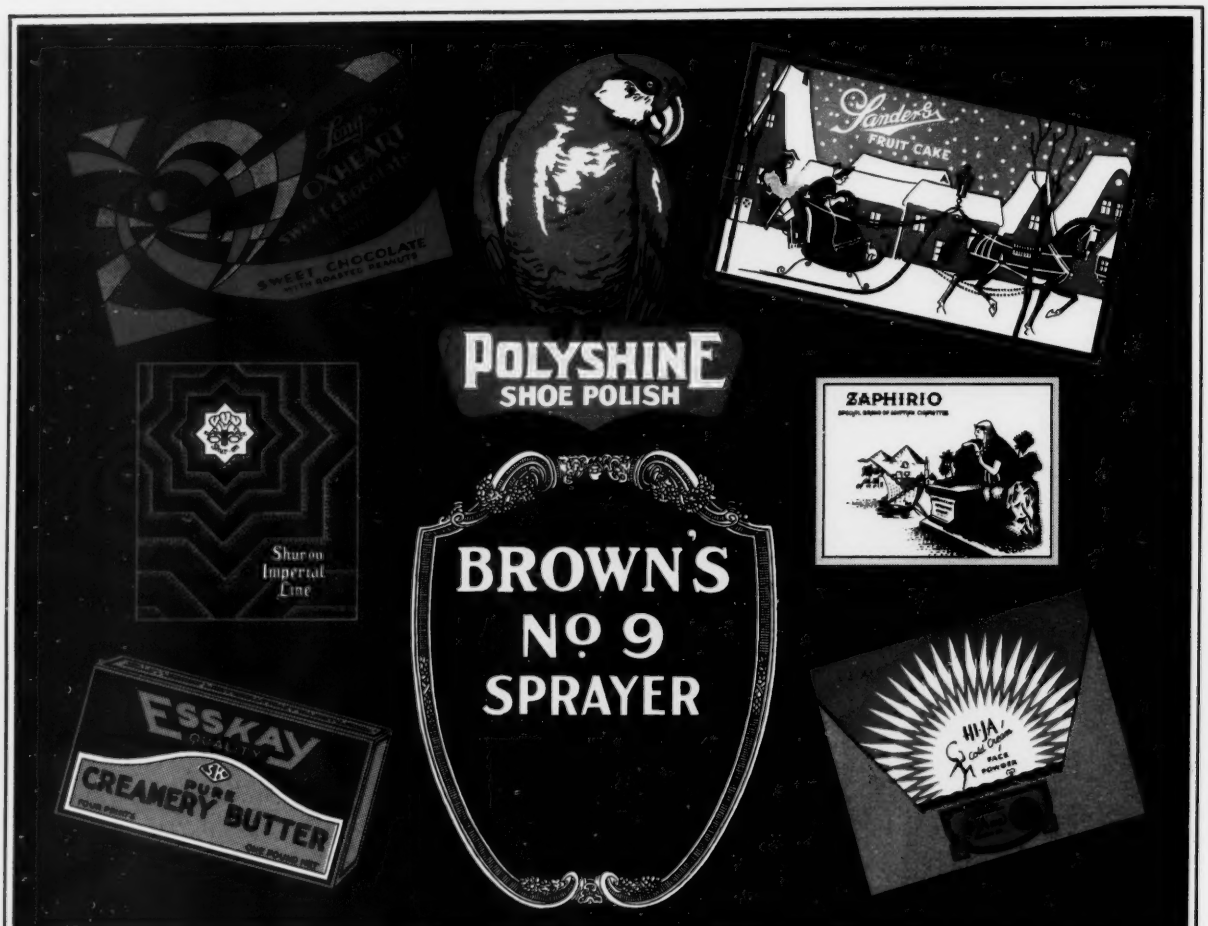
Lithographed in our Rochester, N. Y. plant.

FAIRCO

New York Office 200 Fifth Ave.

E. E. FAIRCHILD CORP. ROCHESTER, N. Y.

merchandise costume stylists



Designs — Labels — Bands — Wraps — Cut-outs

Make your own package outstanding in eye catching sales appeal!

The creative skill and ingenuity of our artists, box designers and lithographers, can be coupled with the ability and facilities of your local box maker.

Our many years experience styling packages for all kinds of merchandise makes us particularly adept in designing packages that *will sell your product!*

To modernize and brighten your package, write "Fairchild" for a suggestion.

Lithographed in our Rochester, N. Y. plant.

New York Office 200 Fifth Ave.

FAIRCO

E.E. FAIRCHILD CORP. ROCHESTER, N.Y.

merchandise costume stylists

PEERLESS ROLL LEAF CO. INC.

Foils for Hot Stamping and Embossing

911-917 New York Avenue, UNION CITY, N. J.

NEW YORK OFFICE: 345 West 40th Street

Branch Offices

BOSTON
552-554 Massachusetts Ave.,
Central Square, Cambridge

CHICAGO
440 So. Dearborn St.

LONDON, ENGLAND
88 Chancery Lane

Distributors

LOS ANGELES
Independent Printers Supply Co.,
340 East Third Street

TORONTO
Wilson-Munroe Co., Ltd.,
18-20 Duncan St.

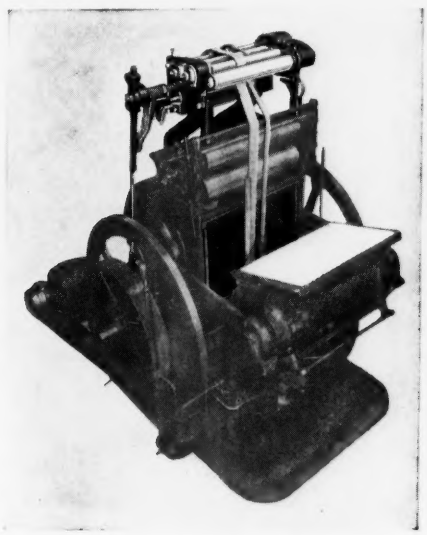
PRODUCTS

(1) **Roll Leaf in Gold, Silver and Colors**
(2) **Pure Gold Leaf in Rolls**
(3) **Automatic Feeders for Roll Leaf**
(4) **Embossing Presses**
(5) **Thermostatic Heat Control**

ROLL LEAF

The modern boxmaker finds PEERLESS ROLL LEAF indispensable in his work. The printer, also needs PEERLESS ROLL LEAF for obtaining fine decorative effects on box wraps, catalog covers, announcements and greeting cards, etc.

We furnish PEERLESS ROLL LEAF in genuine gold, imitation gold and silver and in a wide range of flat and metallic colors. Send for Color Chart and Price List CP.



Peerless Attachment for Platen Presses

ATTACHMENTS

An ordinary platen press of the Thomson Laureate or Colt's Armory type, equipped with a PEERLESS ROLL LEAF ATTACHMENT and a heating plate are all the equipment needed to produce the most distinctive embossed box wraps. A roll of PEERLESS LEAF is automatically fed across the face of an embossing die. One press operation transfers the foil to the paper and embosses the design at the same time. The resulting impression is clean-cut, lustrous, distinctive.

We can supply PEERLESS automatic split feed attachments to fit various types of printing presses. Attachments to feed one, two, or three strips of leaf at the same time are available.

Each set of rollers on our split feed attachments can be adjusted to draw any amount of leaf from 1-16″ up to the capacity of the press. All our attachments operate automatically and require no attention from the operator. Write for illustrated literature giving complete details.

These box wraps were embossed with Peerless Roll Leaf by the Peerless Process

PRESSES

We manufacture or are agents for a complete line of presses for use in the printing business. We also manufacture the highest grade electrical heating apparatus for hot stamping presses, including thermostatic heat controls.

SERVICE

We maintain a force of field men who have the actual experience and the training to give you intelligent help on any stamping problem that may arise.

INFORMATION

We will be glad, without obligating you in any way, to send you literature and complete details as to how the Peerless Process can serve your own business. The Peerless Portfolio, containing samples of box wraps embossed with Peerless Roll Leaf, will be sent free on request.

December 1930.

Gentlemen:

No phase or process of manufacturing or merchandising entails more real anxiety, than the birth of a new product or the conversion of an old one. Only the manufacturer who has been through this experience can fully appreciate the hazards and difficulties, resulting often in a last minute creation, done in half an hour with many pencil strokes and inspired by a competitor's product.

But thanks to the constantly improving tastes of the buying public, manufacturers are today seeking the services of specialists or experts for designing their new products and packages or improving their old ones.

We have proved that our methods of approaching a problem, establishing the objective and developing the vehicle for its desired accomplishment together with the knowledge acquired by specializing in this work, can be applied to the problems of any manufacturer whose product is offered for retail sale.

Thorough knowledge of and continuous close association with design and merchandising problems has gained those sales results for our clients which mark our progress.

The varied list of industries represented by the clients we have successfully served, demonstrates this fact.

Cordially yours,

Edwin H. Scheele

EDWIN H. SCHEELE
President
PACKAGE DESIGN CORP.

A RECORD OF ACCOMPLISHMENT WHICH DEMONSTRATES OUR ABILITY TO SERVE YOU . .

Styling of an old product in the new trend without loss of identity.

Creating family resemblance for an entire line that grew up "like Topsy."

Designing moulded plastics container to present the same visual bulk appearance as glass container of same capacity.

Creation of trade mark for new product.

Advice on style trends for beauty aid and cosmetic manufacturer.

Devised and established a continuous sales style report for electrical apparatus to be used as guide for future designs.

Analysis of entire line of packages with recommendations for improvement.

Designing modern glass containers for fired-in decalcomania decoration.

New novel construction for boxes made in manufacturer's own plant to be reproduced by the same machinery.

Styling of product to increase outlets for the product.

Creation of name for new product.

Counsel on new merchandising slant for old product.

Package Designers.
Product Stylists.
Color Consultants.

Determining best method of packaging and type of container.

Retained by various manufacturers as official design and merchandising counsellors to facilitate sale of material to other manufacturers.

The complete package design service, or any part thereof, is available as you choose to use it. A letter, outlining your problems will receive our prompt consideration.

PACKAGE DESIGN CORPORATION, 8 MURRAY ST., NEW YORK

PACKAGE MACHINERY COMPANY

Over 150 Million Packages per day are wrapped on our Machines

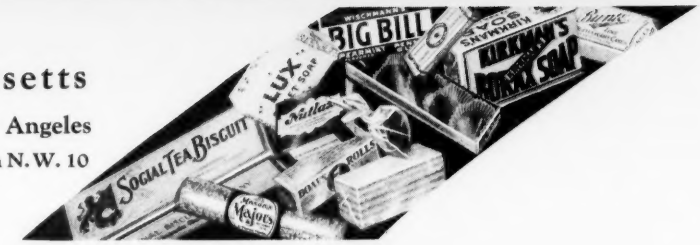
General Offices:

Springfield, Massachusetts

New York Chicago Los Angeles

London: Baker Perkins, Ltd., Willesden Junction N. W. 10

Manufacturers of
Package Wrapping Machines



The Package Machinery Company is a pioneer in the development of packaging machinery, and has played a leading part in changing the package goods business from hand wrapping to machine production. It required a great deal of inventive skill and years of effort to provide the machines to wrap the great variety of articles which are now being turned out on Package Machinery Company machines. You will benefit by availing yourself of this ability and experience whenever you have a wrapping problem—whether it be to find a way to wrap a new product; to improve the sales appeal of a present package, or to lower packaging costs.

A wide variety of machines

Because of the wide variety of machines in our line, it is seldom necessary to go to the expense of designing an entirely new machine to fit the needs of a customer. We usually have a machine, which, with slight adaptations, meets the requirements.

Wrapping materials used

Our machines are adaptable to practically every form of wrapping material—plain paper, printed paper, glassine, Cellophane, waxed paper and foil.

Speed as a factor in economy

Our machines are designed to run at the highest speed consistent with good wrapping and the life of the machine. High speed means that the owner secures the maximum amount of production for his labor cost and the cost of floor space. In many cases the installation of high speed machines to replace older models makes it unnecessary to rent more floor space or to build an addition to the plant.

Sales appeal through better wrapping

We have assisted many manufacturers in improving the sales appeal of their products by providing machines to make new and better

forms of wrapping. In fact, many of the modern refinements in wrapping have been made practicable only by machine production. The addition of attractive end-seals, glassine and Cellophane wrapping, the heat-sealed waxed paper wrapper—these modern refinements which add so much to the selling advantages of the product can now be taken advantage of at little extra cost.

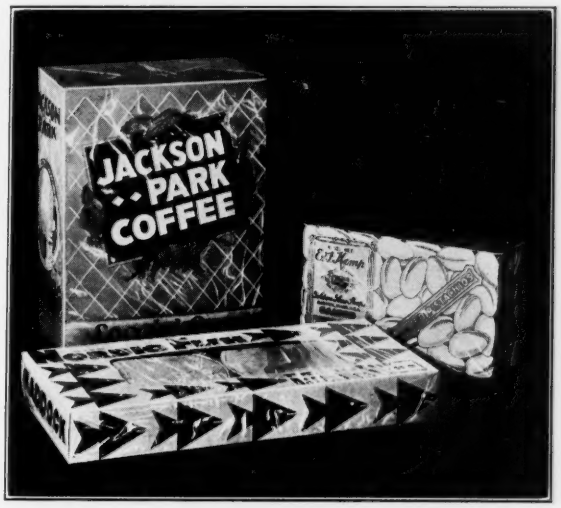
A recent development—Tight-Seal Cellophane wrapping

Our latest contribution to packaging is *Tight-Seal Wrapping* with moisture-proof Cellophane. By a special method of sealing and the use of moisture-proof glue, our machines produce a wrapping which is as air-tight and moisture-proof as waxed paper wrapping. Tests show that this moisture-proof Cellophane wrapped by the Tight-seal method also retains the flavor and fragrance of a product more effectively than any other wrapping material. This fact makes it especially valuable for such products as coffee, chewing-gum, perfumed soaps and powders, etc.

Tight-Seal Wrapping offers an opportunity to secure, in addition to perfect protection, a new and powerful sales appeal through the richer, more attractive appearance which Cellophane wrapping provides.

Long life—dependable service

Our machines are designed so that they will operate with little wear on the parts. The finest and most enduring materials that money can buy are used in their construction. The workmen who build them are highly skilled craftsmen, especially trained by years of experience to produce work of fine precision. The result is that these machines give outstanding service for many years. Numbers of models built over 20 years ago are still running, without any signs of quitting.



TIGHT-SEAL WRAPPING

By the use of heat sealing, plus the application of a special moisture-proof glue, all seams and folds are made more air-tight than has ever before been possible with any other form of wrapping.

All working parts are easily accessible for oiling and cleaning. Each machine is designed to run at the speed at which it will do the best wrapping. It is thoroughly tested before it leaves the factory, and is, of course, guaranteed to operate as described. All parts have numbers stamped on them for convenience in ordering by letter or telegram.

The expert service men of the Package Machinery Company are always available for service in any part of the country.

Write for catalog

Our catalog will give you a better idea of the work done by our machines. If you have any special problem, send us a sample of the product you wish to have wrapped, with a description of the type wrapping you have in mind. We will be glad to assist you.

R. C. Specialty Fibre Cans

Shape requirements have never stumped the R. C. Can Co. designers. If you wanted a star shaped fibre can we could throw it on the drawing boards with the same certainty of getting a practical, producible container as we would have for the simplest of cartons.

Similarly any other seemingly insurmountable problem of design or production is greeted at the R. C. Can Co. plant as something to make the day's work more interesting. We are, and intend to always be, experts in trouble shooting. We have, and intend to have even more, customers who can rely upon us to produce fibre cans of uniform high quality, every day in the year.

May we show you what we can do . . . and how little it will cost?

R. C. CAN CO.

ST. LOUIS MISSOURI

Factories at St. Louis and Rittman, Ohio

Put your fibre can problems up to us: one of our experts can solve them.

XUM

SYLPHRAP TO WIDER

THE BUTCHER, THE BAKER, THE CANDY MAKER » » »

They all wrap their products in SYLPHRAP, the ideal transparent cellulose wrapper, and for very good reasons too. SYLPHRAP improves and dresses up the product to a remarkable extent. It reflects, by its clear visibility and silver sheen, the quality and character of the product, thereby making a sales-appealing picture.

And from the consumers angle — They know that a product packaged in SYLPHRAP is dust-proof, odor-proof and germ-proof. That's why they buy SYLPHRAP-ed products in preference to others.

SYLVANIA INDUSTRIAL

22 EAST 42nd ST., NEW YORK


ME
122 E

MERCHANDISING AID TO GREATER SALES

AT THE SIGN OF SYLPHRAP

The label with the Sylph-like figure and the name SYLPHRAP immediately stamps the product enrobed in this silver sheen transparent cellulose as one which is perfectly protected against dust and germs.

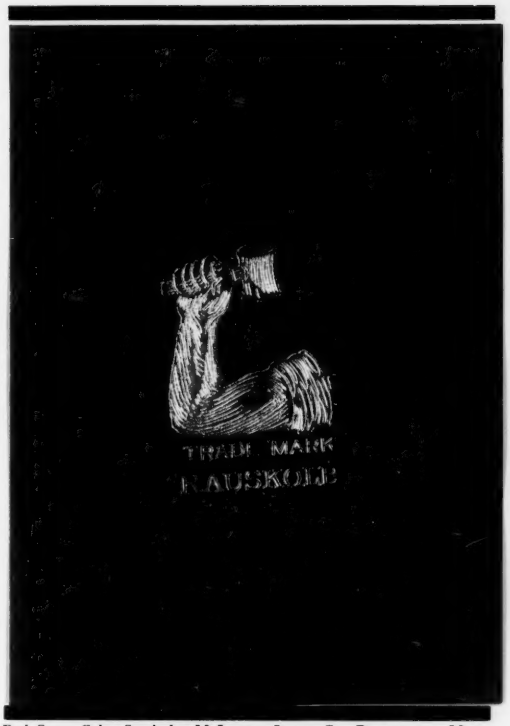
It identifies the manufacturer as one who is alive to modern merchandising trends and who uses the best materials to obtain sales-results.

In ordering your transparent cellulose wrapping, look for the SYLPHRAP label. It is your only guarantee of the finest sheets which science and skill have produced.

SYLVANIA INDUSTRIAL CORPORATION

122 EAST 42nd ST., NEW YORK

WORKS, FREDERICKSBURG, VA.



Red Super-Color Stock by McLaurin-Jones Co. Brookfield Mass.

VERSIFOIL

Another example of the versatility of VERSIFOIL is shown here. VERSIFOIL is an imitation gold leaf which combines five prominent advantages (clearly illustrated on the sample) to make it the ideal foil for economical and effective stamping on any kind of cloth, imitation leather or specialty paper.

For a more effective box or package, specify VERSIFOIL. Its advantages are to your advantage.

VERSATILITY — Versatility in application on all materials.

REGULATION — Inherently an anti-spread material.

RELEASE — Clear, easy release.

BRILLIANCY — Smooth, lustrous surface.

ADHESION — Unusual adhesive qualities.

F. W. RAUSKOLB CO.

Gold and Imitation Gold Embossing Foils

16 Franklin Street — Medford, Mass.

Distributors

N. Nelson
318 Gilfillan Bldg. St. Paul, Minn.

Arthur J. Bergren
19 So. Wells St. Chicago, Ill.

Branch Offices

82 St. Paul St., Room 705
Rochester, N. Y.

200 Hudson St.
New York City Walker 5-3944

AMERICA'S MOST

. . . are packaged by

The answer to every manufacturer's query, "What is the most efficient method of packaging?" is in the photo above. Grouped together here are the products of some of America's greatest manufacturers — all of them in cans, bottles, or packages filled, weighed, capped, and sealed by Pneumatic Machines. Only Pneumatic Machines can show such a record of achievement. There is only one conclusion to be drawn from the fact that the majority of America's largest and best known

FOR DRY FREE FLOWING MATERIALS

- Carton Feeders
- Bottom Sealers
- Lining Machines
- Weighing Machines (Net and Gross)
- Top Sealers
- Wrapping Machines (Tight and Wax)
- Capping Machines
- Labeling Machines
- Tea Ball Machines

FAMOUS PRODUCTS

Pneumatic Machines

producers use them. That is, Pneumatic Machines operate with an efficiency and dependability that keeps packaging costs down to the minimum, while they turn out the packaged product at adequate speeds to meet varying productions.

FOR
LIQUIDS AND
SEMI-LIQUIDS

Vacuum
Filling Machines
(for liquids or semi-liquids)

Automatic
Capping Machines

Automatic
Cap Feeding Machines

Automatic
Corking Machines

PNEUMATIC SCALE
PACKAGING MACHINERY

PNEUMATIC SCALE CORP., LTD., NORFOLK DOWNS, MASS.

Branch offices in New York, 26 Cortlandt Street; Chicago, 360 North Michigan Avenue; San Francisco, 320 Market Street; Melbourne, Victoria; Sydney, N. S. W. and 9 Whitehall, London, England

PACKAGE ECONOMY

WRAPPING MACHINES

TIGHT-WRAPPING MACHINES
Automatic and Semi Automatic

FILLING MACHINES
Gross Weight
Net Weight
Volumetric

SEALING MACHINES
Carton Sealer
Envelope Sealer

At Speeds to suit 15–30–60 per minute

For material of 126 different kinds.

For Maximum Display Value at Minimum Cost Tight Wrap Your Packages

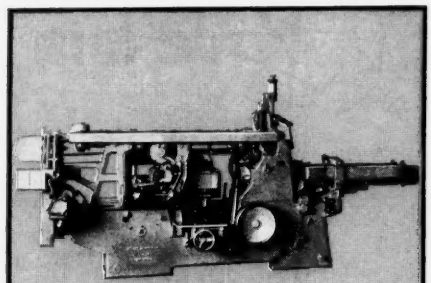
The excellence of the tight-wrapped package is generally admitted, and a review of comments made by satisfied customers recently received is most convincing as to the character of equipment furnished by the Stokes & Smith Co.

The package is tighter and stronger than the printed carton, but the compelling reason for its use is the greater display value and its effectiveness in increasing sales.

The adoption of the tight-wrapped package is easier and less expensive than is generally supposed.

Wrapping Machines may be furnished either with or without the Carton Filling and Sealing Machines and for almost any size of package. Machines operating at high and at low speed are available. They may be made adjustable if necessary. The wrapper is glued tightly to the carton shell at all points and may be folded at the end of the package in any one of various ways as the customer may prefer.

Detailed estimates of probable costs of package and machinery will be furnished on request. No obligation is involved.



AUTOMATIC TIGHT-WRAPPING MACHINE
Production 60 per minute.

STOKES & SMITH COMPANY

FRANKFORD, PHILADELPHIA,

U. S. A.

For Pacific Coast
MAILER SEARLES INC.
135 Fremont Street, San Francisco, Cal.

For Europe
STOKES & SMITH CO.
23 Goswell Road, London.

AND EFFICIENCY

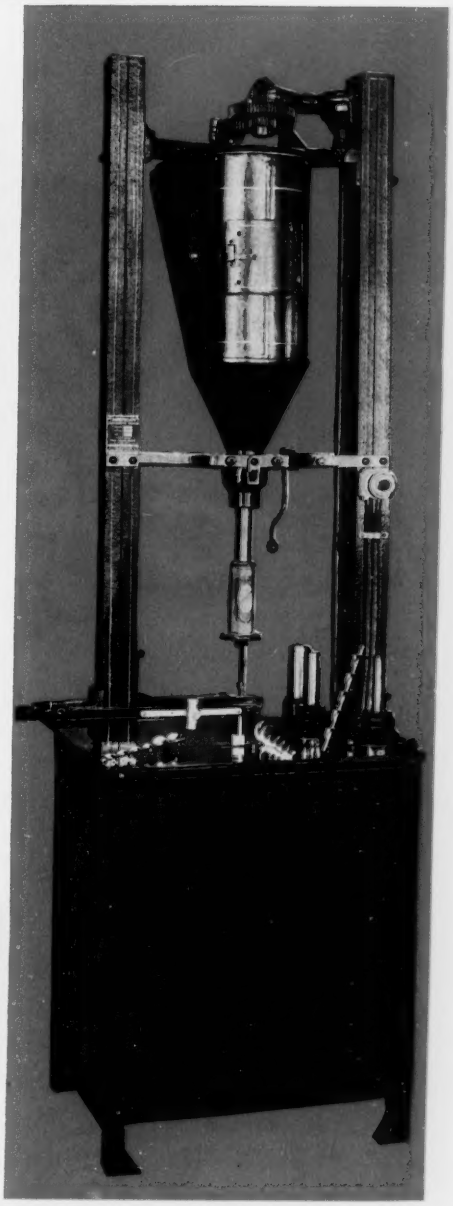
FILLING MACHINES

Packaging Is a Production and Sales Problem

The Production Department says packages must *protect* the product . . . keep it in the best possible condition until it's consumed . . . and the packaging machinery must be fast, economical and dependable.

The Sales Department says packages must be attractive, neat, convenient in size and shape, capable of effective display . . .because those factors have a decided effect on sales volume. If the package and the machinery that produces it can't satisfy both Production and Sales, there's something wrong . . . and it *can* be corrected.

Stokes & Smith Packaging Machines handle the widest imaginable variety of products. Our experience in supplying packaging machinery for 126 different materials may be useful to you. At least, it will cost you nothing to find out . . . write us today.



The UNIVERSAL FILLING MACHINE here illustrated fills all kinds of powdered materials, even the more difficult kinds, into cans, jars, bottles, cartons, bags or practically any type of container. Particularly adaptable to containers of unusual size or shape. Handles weights from ½ ounce to 5 lbs., can be used to measure by weight or by volume. Requires only one operator. Produces 15 to 30 filled containers per minute. Can also be furnished with Automatic Conveyor and Capping Device and in many combinations with other equipment.

STOKES & SMITH COMPANY

FRANKFORD, PHILADELPHIA, U. S. A.

For Pacific Coast
MAILER SEARLES INC.
135 Fremont Street, San Francisco, Cal.

For Europe
STOKES & SMITH CO.,
23 Goswell Road, London.

For the good name and well being of your product use a
RIEGEL'S GLASSINE WRAPPER

Inside or outside, waxed or plain, printed or unprinted . . . according to the purpose it serves. Every year for a multiplicity of uses, our plant at Milford, N. J. produces over thirty million pounds of glassine. This large capacity is one of the greatest safeguards for the individual user of large quantities of glassine paper.

A dependable source of supply, producing a quality product in quantity.

RIEGEL PAPER CORPORATION

Formerly The Warren Manufacturing Co.

342 MADISON AVENUE, NEW YORK, N. Y.

Mills in New Jersey at Riegelsville and Milford

MARVELLUM FACILITIES

USE THE COUPON UNDER THE SWATCH TO SEND FOR SAMPLE BOOKS

Return this Coupon

AT YOUR DISPOSAL

TO ASSIST in creating unusual designs in the line of fancy, plain-coated, and embossed papers, to harmonize with your product or the needs of your market.

The swatch on the left represents only a few of the thousands of designs we have produced--some of them daring, some of them delicate, but all of them attractive and appealing. Marvellum offers you a wide range of color effects, designs, finishes, and combinations.

If you want your package to attract attention in the welter of containers striving for effect, let us submit a fancy paper to meet your requirements or–

Call on our Art Department to help you with your particular package. It will be glad to be of Service.

MARVELLUM PAPERS are Distributed by

BRADNER, SMITH & CO.
333 So. Desplaines Street
Chicago, Ill.

HUGHES & HOFFMAN
217 Mercer Street
New York City

HENRY L. GOODMAN
110 High Street
Boston, Mass.

HOLYOKE PAPER CORP.
487 Broadway
New York City

A. HARTUNG & CO.
506-512 Race Street
Philadelphia, Pa.

HOLYOKE PAPER CORP.
10 High Street
Boston, Mass.

The MARVELLUM CO.

Manufacturers of Papers Distinctive

HOLYOKE, MASSACHUSETTS

This insert is printed on No. 469 Mahogany, Mural Metallic Papers

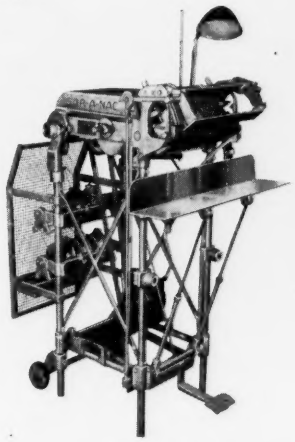
SARANAC BAG SEALERS
(INCORPORATED)

BAG CLOSING and STAPLING MACHINES

BENTON HARBOR, MICHIGAN

BAG CLOSING and STAPLING MACHINES

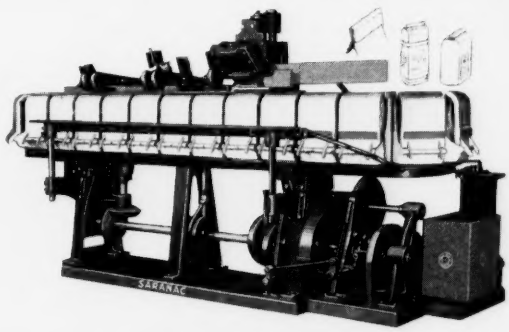
Flour, Sugar, Coffee, Cereals, Stock Foods, Dry Paints, Dry Chemicals, Insecticides, Lithopone, etc., in various bag sizes can be rapidly and securely, almost hermetically, sealed. The minimum of paper is used to make the fold. The stapling heads use wire from the coil, cut, form, drive and smoothly clinch the staples.



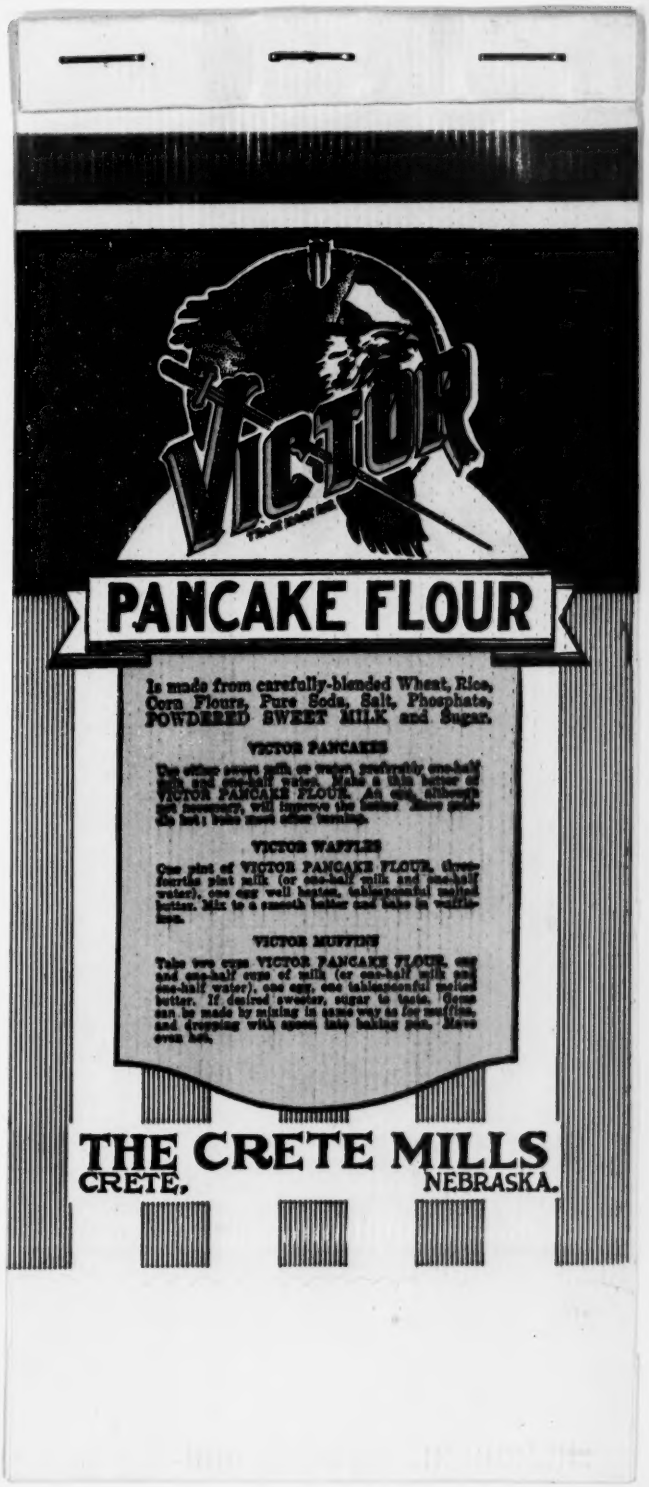
Saranac Paper Bag Sealer
Type B—Portable—Semi-Automatic

A *sift proof seal* which complies in every detail with the specifications of the U. S. Interstate Commerce Commission and the Bureau of Explosives and Poisonous Articles is rapidly and economically produced by the Saranac method.

The field for paper bags has been greatly enlarged, and the strength and usefulness of the bags definitely increased by folding and stapling the closures the Saranac way. Among all the tests made to establish the quality of the folded and stapled seal, the stapled seal did not fail in a single instance. The staple-sealed closure is in fact the strongest part of the bag.



Saranac Special Automatic Paper Bag Sealing Machine



Howard D. Salins
Golding Printing Machinery, Inc.

MACHINERY AND SUPPLIES OF EVERY DESCRIPTION

Special Machinery Designed --- Built

608 So. Dearborn Street CHICAGO, ILL. 469–74 Transportation Bldg.

Paper and Printing Efficiency Engineers, Mechanics, Builders, Designers, Regular and Special Machinery

---

SALGOLD Automatic Jobber, One Color Machine 10 x 15 Size.
SALGOLD Automatic Jobber, Two Color Machine 10 x 15 Size.
SALGOLD Automatic Jobber, Two Color One Side or One Color Front and One Color Reverse Side Jobber Machines.
Die Cutting, Punching, Perforating, Cutting, Slitting Lengthway and Crossway Complete Operation.
Automatic Multiple Color Printing, Punching, Die Cutting, Die Punching Length and Crossway Cutters.
Creasing, Scoring, Embossing One Complete Operation for Paper and Cardboard Printing Production Work.
Hand-Fed and Automatic Offset Machines.
Web Offset Machines.
One or Multiple Color Rotary Machines.
Photogravure, Rotogravure Intaglio Printing Machines.
Newspaper Presses.
Paper-Making Machinery.
Box-Making Machinery.
Lining Machinery.
Paraffining, Varnishing and Waxing Machinery.
Knotting, Looping, Stringing and Wiring Machinery for Paper Novelties, Tags, etc., Hand-Fed and Automatic.
Tag and Ticket, Embossing, Printing, Metal Eyeletting, Paper Patching Machines for Two Colors Two Sides, Either in Separate Operation or in One Complete Operation—Automatic.

EVERYTHING FOR THE EFFICIENT PRINTER AND MANUFACTURER IN THE PAPER, PRINTING AND ALLIED INDUSTRIAL TRADES.

FOIL AND FOIL PRODUCTS

ALUMINUM FOILS

Manufactured in all yields from 2,000 to 45,000 square inches per pound. Plain; embossed; printed; lacquered. With or without tissue interleaving. Mounted on dry or waxed papers. In sheets or rolls. Width up to 26 inches. Soft and pliable or annealed to any desired temper. Used for packing confections, chewing gum, tea, cocoanut, cheese, films, etc.

MASTER METAL FOIL
THE METAL SHIELD OF PROTECTION

MASTER METAL CARTONS

Lined or surfaced with silver or lacquered plain or embossed foil backed with substantial paper-board. Printed or unprinted. Combines advantages of paper and metal containers. Individual cartons and counter display boxes. For cakes, candies, cheese, cigars, cigarettes, ice cream, etc.

PURE TIN-FOILS

Manufactured in yields ranging from 2,000 to 8,000 square inches per pound. Lead-free foil can be supplied yielding 13,500 square inches per pound. The former grade may be plain; embossed; printed; lacquered. With or without tissue interleaving. Mounted on dry or waxed paper. In sheets or rolls. Used for packing cheese and confections.

MASTER METAL TITE-WRAPS

The tite-wrap consists of foil inseparably attached to paper by an odorless, water-proof cement. Affords metal package protection at paper-package cost. Applied by standard tite-wrapping machines. Can be printed in colors. In sheets or rolls. Used for packing cereals, prepared foods, dried fruits, raisins, cocoanut, candies, etc.

COMPOSITION FOIL

Manufactured in yields ranging from 800 to 5,000 square inches per pound. Plain; embossed; printed; or lacquered. With or without tissue interleaving. Mounted on dry or waxed papers. In sheets or rolls. Used for wrapping cigars, candy, chewing gum, cigarettes, etc.

UNIFOIL BOX COVERS

A foil-surfaced paper-backed decorative box covering of rare beauty. Supplied in richly-embossed silver or colors. Easily handled by standard box-making machines. Special color-printed designs for Christmas. Offered in a wide range of embossing, colors, and fancy patterns in 20x26 inch sheets or 26-inch rolls.

LEAD FOILS

Manufactured in yields ranging from 600 to 1,600 square inches per pound. Plain only. Can be tissue interleaved and the lighter grades mounted on dry or waxed papers. In sheets or rolls. Chiefly used for packing tea and similar bulk products.

METALKRAFT

A foil-lined wrapping paper, the foil being sandwiched between two sheets of kraft paper. Moisture-proof and grease-proof. Useful as a lining for export shipping cases or for packing any article likely to be injured by moisture, insects, etc. Sheets or rolls.

Our Service Department will gladly analyze your packing problems and recommend the proper grade of foil or type of package. Recommendations and samples on request. No obligation.

REYNOLDS METALS COMPANY

INCORPORATED

541 WEST 25th STREET NEW YORK CITY

345 NINTH ST., SAN FRANCISCO

SALES OFFICES IN PRINCIPAL CITIES OF U. S. A.

F. J. STOKES MACHINE COMPANY

COLLAPSIBLE-TUBE, JAR AND POWDER FILLING EQUIPMENT

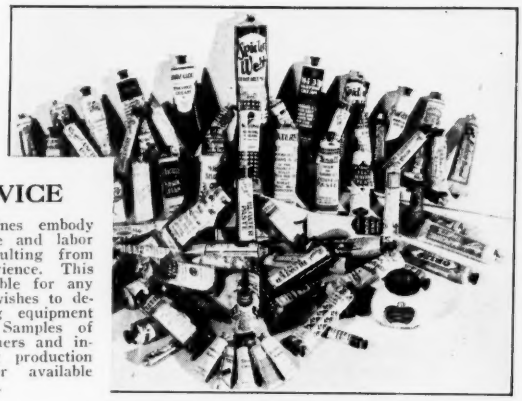
5990 Tabor Road, Olney P. O.
PHILADELPHIA, PA.

NEW YORK OFFICE—103 Park Avenue

Containers filled with STOKES Powder Filling Equipment

OUR SERVICE

Our stock machines embody many patented time and labor saving features resulting from over 30 years' experience. This experience is available for any manufacturer who wishes to develop special filling equipment for his product. Samples of material and containers and information regarding production desired and power available should be furnished.



Collapsible tubes filled with STOKES Tube Fillers

POWDER FILLING EQUIPMENT

A full line of semi-automatic and automatic models for filling practically any powdered or granular product into tins, boxes, bottles, cartons, etc.

New model illustrated is full automatic filler and capper with a number of attachments which make it ideal for production on a variety of products. Comes also in basic model to which these same attachments can be added as increased production warrants.

Machine is simple, compact, practical, dependable, uniformly accurate, clean, easily adjusted and quickly "changed over."

Capacity 20-40 containers per minute.

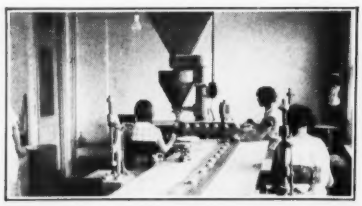
TUBE FILLING EQUIPMENT

A full line of hand operated and power driven models for filling collapsible tubes, also closing tubes, making and attaching clips. Handle creams, pastes, liquids and semi-liquids accurately and cleanly.

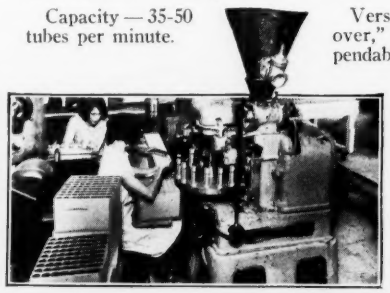
New model illustrated is full automatic filling, closing, clip-making and attaching machine for handling cosmetics, pharmaceuticals, chemicals, paints, glues, greases, dressings, polishes, foods, etc. Patented clip-forming feature alone usually saves more than the one operator's wages.

Capacity — 35-50 tubes per minute.

Versatile, quickly "changed over," clean, accurate, dependable, simple, compact.



STOKES Powder Filler, No. 15A, in perfumery plant where it was said to have "cut packing costs in half."



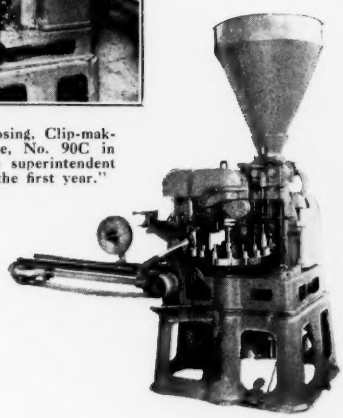
STOKES Tube Filling, Closing, Clip-making and Attaching Machine, No. 90C in pharmaceutical plant whose superintendent reported it "saved $2500 the first year."

STOKES new Automatic Powder Filler and Capper, No. 15A.

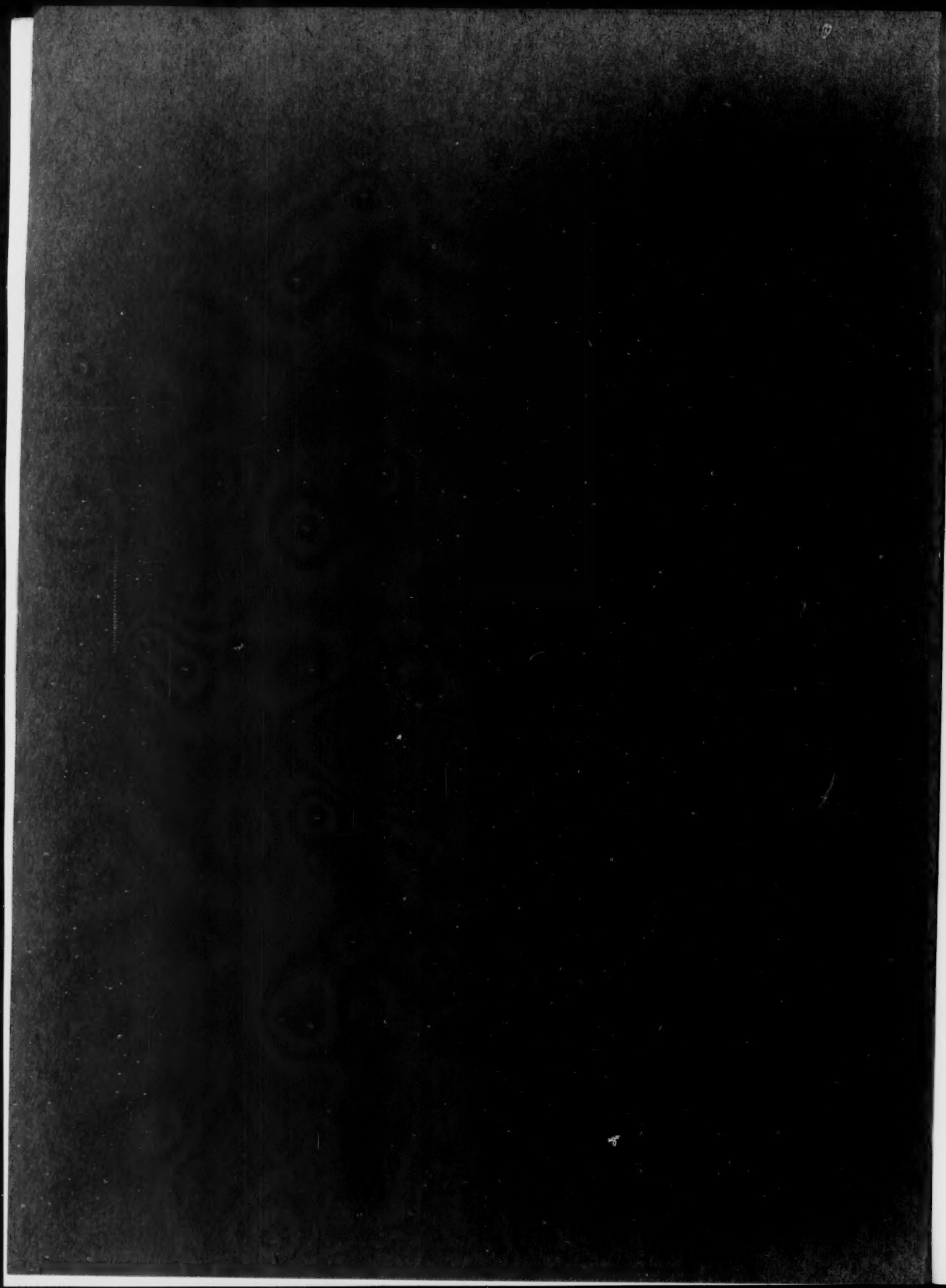
PRODUCTS

Tube Fillers, Closers and Clippers
Powder Fillers and Cappers
Jar and Can Fillers—Mixers
Conveyors—Bottle Washers
Special Filling Machines

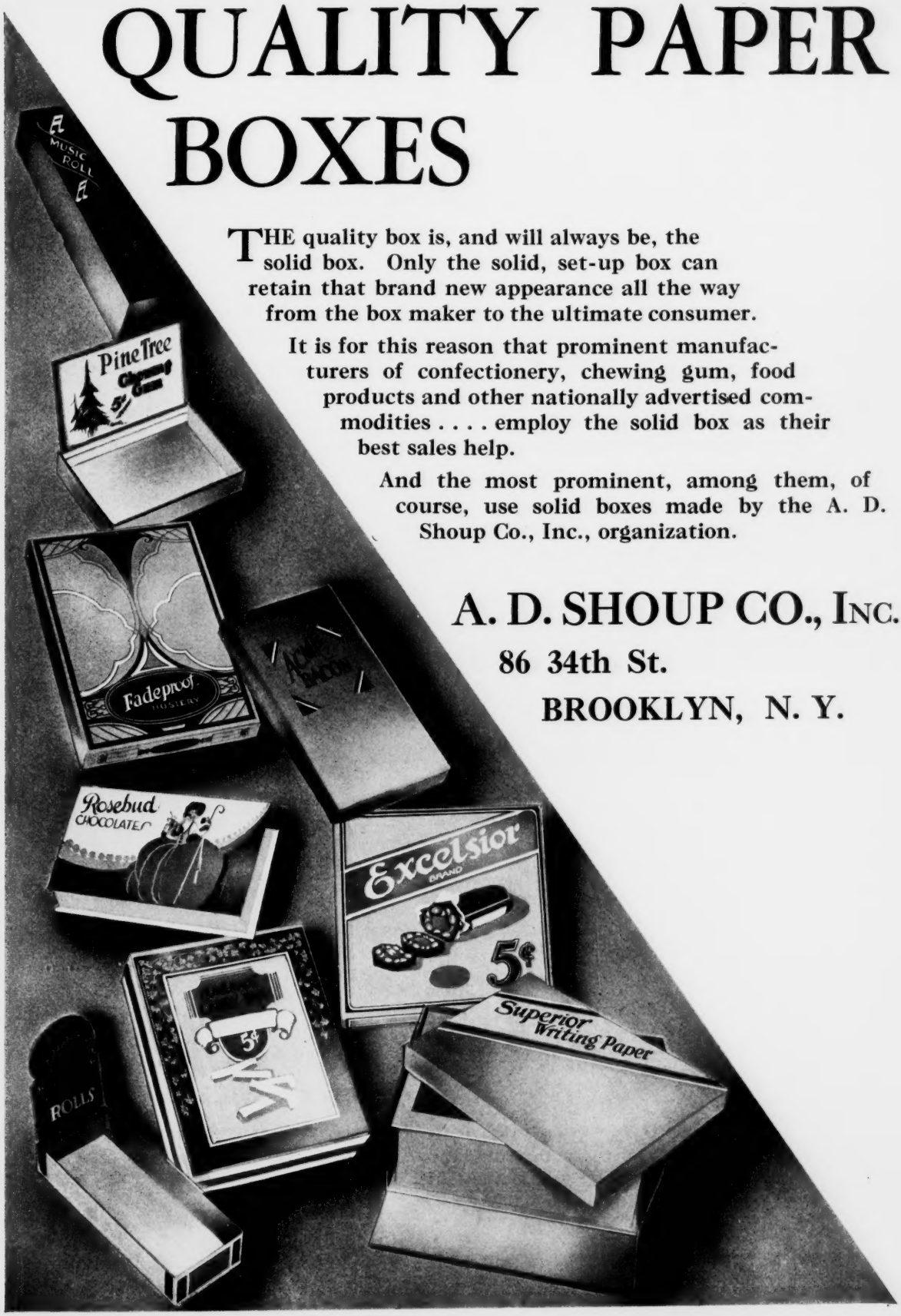
Special booklets describing our tube and powder fillers available on request.



STOKES Tube Filling, Closing, Clip-making and Attaching Machine, No. 90C.



QUALITY PAPER BOXES



THE quality box is, and will always be, the solid box. Only the solid, set-up box can retain that brand new appearance all the way from the box maker to the ultimate consumer.

It is for this reason that prominent manufacturers of confectionery, chewing gum, food products and other nationally advertised commodities . . . . employ the solid box as their best sales help.

And the most prominent, among them, of course, use solid boxes made by the A. D. Shoup Co., Inc., organization.

A. D. SHOUP CO., INC.

86 34th St.

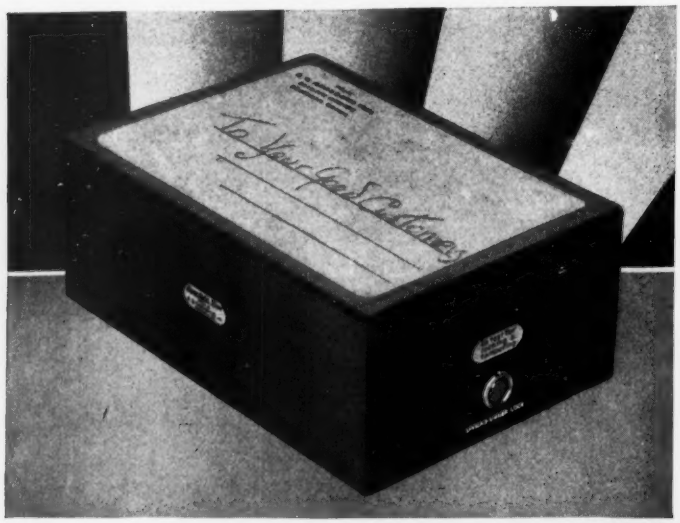
BROOKLYN, N. Y.

SEE FOR YOURSELF

What the mail pilferer is
up against when he tackles

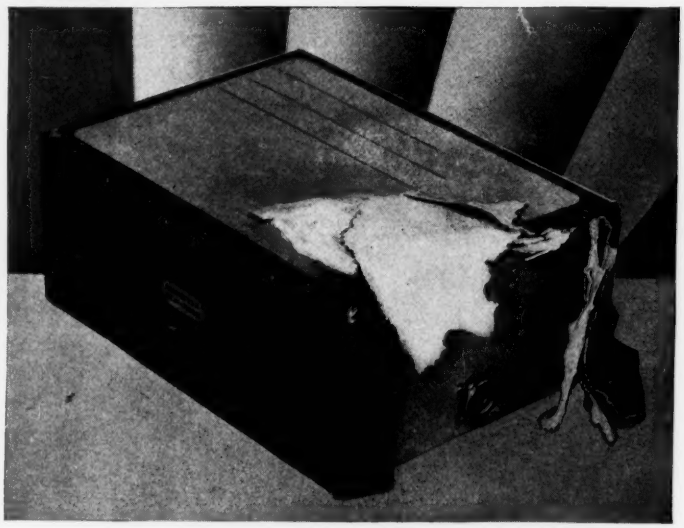
A SHOUP *Everlokt* MAILCASE

Registered Mail Accepted by Addressee—Untampered



● The locking feature of the *Everlokt* Mailcase is exclusive and is patented. It consists of two locks, one on each end of the box. Snap the bullet pins through the locks and the box is locked—permanently; a perfect protection against tampering.

● A postcard will bring you the neat package shown above. Inside the case is your sample, waiting to be sealed and locked. Try this test: **IF YOU CAN GET THE SAMPLE WITHOUT DESTROYING THE OUTSIDE CONTAINER,** you will have accomplished what no pilferer can do. **YOU CAN'T GET AT THE CONTENTS OF A SHOUP *Everlokt* MAILCASE WITHOUT DESTROYING THE MAILCASE!**



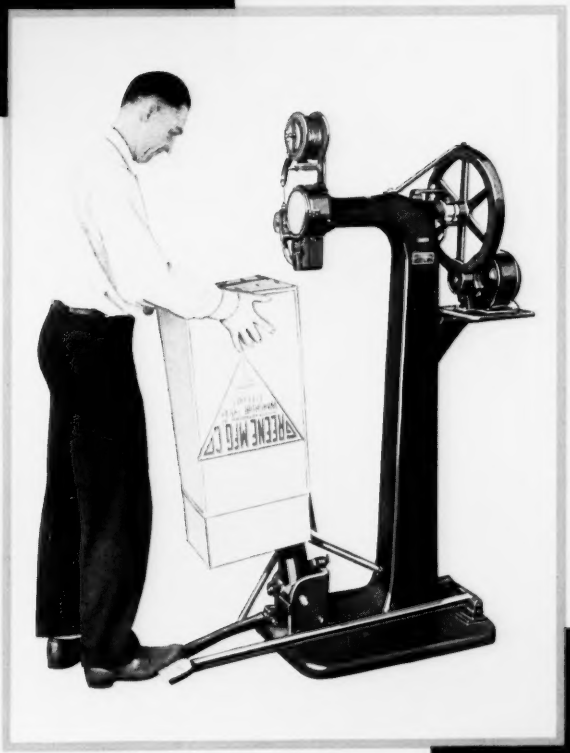
Registered Mail Not Accepted by Addressee—Tampered With

Don't take our word for it, we will send you your test sample
so that you can **SEE FOR YOURSELF!**

A. D. SHOUP COMPANY, INC.

34 to 86 THIRTY-FOURTH STREET BROOKLYN, N. Y.

IDEAL FOR WIRE STITCHING



IDEAL STITCHER & MANUFACTURING COMPANY

RACINE, WISCONSIN

THERE'S AN "IDEAL" FOR

"IDEAL STITCHERS" are the result of thirty-five years' experience in the manufacture of wire stitchers. Constant improvement and change to meet the changing requirements of box manufacturers and shippers has created a line of wire stitchers which can be justly called "IDEAL."

The savings in labor and material effected by their use and the low upkeep cost has been reflected in the steady increase in the number of users who have standardized on "IDEAL."

The Ideal Container End Stitcher is used for stitching the bottoms of fibre and corrugated shipping containers instead of glueing and taping. Your container will carry better in transit. No loss of time waiting for glue to dry. Made in two sizes—12″ machine to handle a case 24″ sq. by 40″ deep—20″ machine which handles cases up to 40″ sq. by 43″ deep.

The Ideal 26″ and Straight Arm Machine (also comes equipped with table and open head device) for fibre container work. Capacity up to 300 point board. Speed 185 to 225 staples per minute. Also made in 12″, 20″ and 30″ arm.

The Ideal Corner Stitcher. Particularly suited to biscuit and cracker manufacturers for caddy lids. Welds the corner with a perfectly driven staple into one piece. Equipped with either 020-017 or 20x25 wire.

IDEAL STITCHER AND MAN

OR EVERY STITCHING JOB!

"IDEAL STITCHERS" live up to their name in mechanical perfection. Fewer working parts which are easily accessible and the elimination of all unnecessary adjustments guarantees continuous service day in and and day out.

"IDEAL" equipment is thoroughly inspected and tested before delivery and is guaranteed for the life of the machine against defective material or inferior workmanship.

Special tool steels are used in the manufacture of all vital parts and assure every purchaser a machine that lives up to "Ideal" standards.

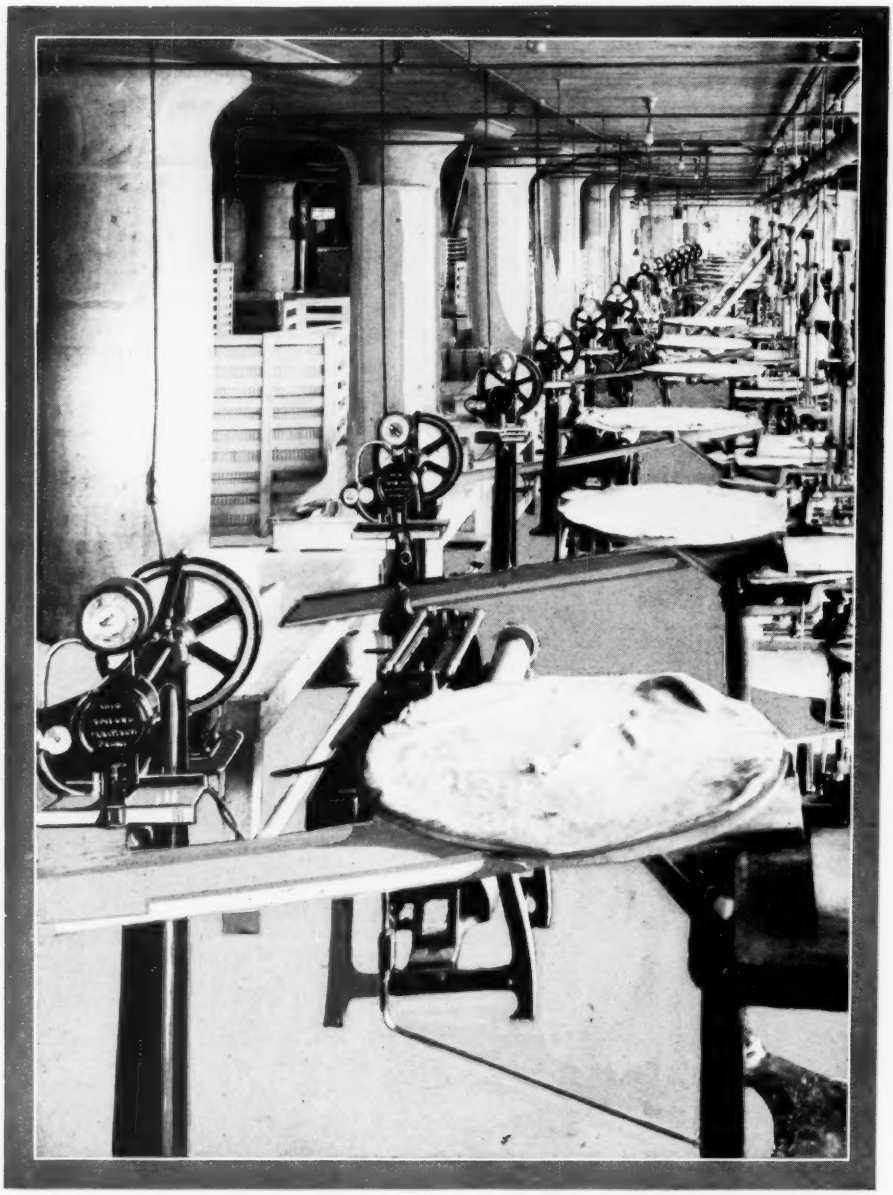
The Ideal 12″ Low Stand Stitcher equipped with table and gauges for automatic suit box work. Capacity up to 300 point board. Speed 185 staples per minute and up. 1/6 H. P. Motor. 325 lbs. crated.

Ideal 26″ and 30″ right angle head stitcher —used for stitching two piece containers. Staples are placed parallel with the stitching arm. Capacity 300 point board. Speed 185 staples per minute and up. 1/6 H. P. Motor. Weight, 26″ 425 lbs. crated.

Ideal 12″ Right Angle Arm Stitcher. Capacity 300 point board. Speed 185 staples per minute and up. Can be supplied in 20″ and 26″ Arm.

ANUFACTURING COMPANY

AN IDEAL INSTALLATION



A typical Ideal installation is shown above. Sixty Ideal Paper Box Stitchers were installed in one factory as a result of Ideal performance.

For "Ideal" Results Call In an "Ideal" Engineer

IDEAL STITCHER & MANUFACTURING CO.

100-102 FOURTH STREET, RACINE, WIS.

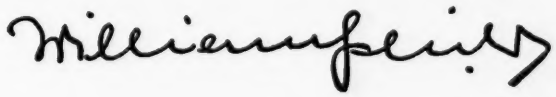
Eastern Representative:
186 Wooster St.,
New York City.

Western Representative:
218 N. Clinton St.,
Chicago, Ill.

75 Fremont St.,
San Francisco, Calif.

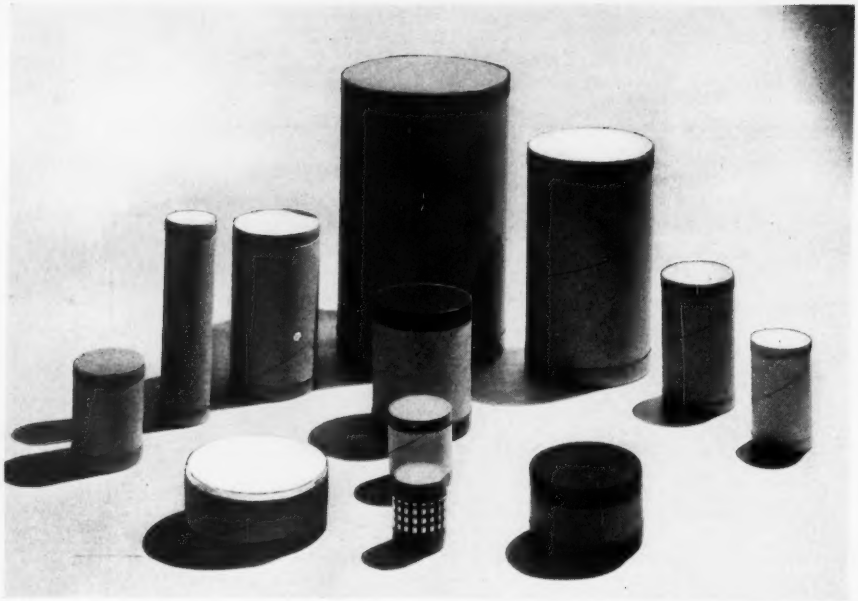
AN IMPORTANT NEW SERVICE TO BOX MAKERS AND BOX USERS

This company has been organized for the purpose of providing the users of box papers with a new complete service. We are in a position to furnish you with practically any paper, wrap, or label that is manufactured here or abroad, suitable for covering paper boxes. ¶This new convenient service includes every important line that is made. ¶Our complete coverage of the field gives us a wide knowledge of papers and their use. You are invited to avail yourself of this knowledge and experience without obligation. Our counsel in the selection of any paper is simply additional service without cost. ¶We hope that we may have your patronage.



President

WM. SCHILD & COMPANY
300 WEST ADAMS STREET · CHICAGO



Seeley
PAPER PRODUCTS

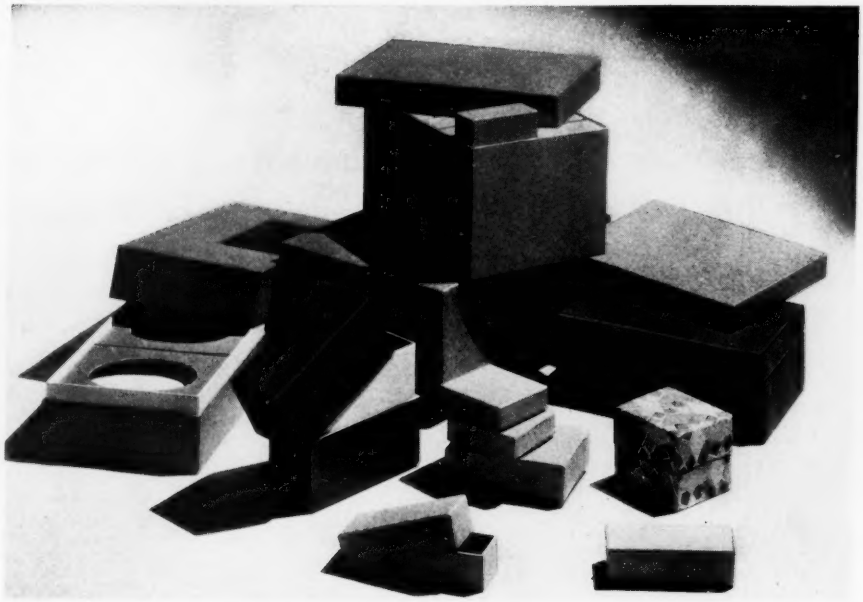
PAPER BOXES
•
PAPER TUBES
•
PAPER CANS
•
PAPER CORES
•
PAPER
SPECIALTIES

Spiral wound fibre cans — fibre top and bottom — plain, fancy paper covered or wrapped with your own label — all sizes.

Face Powder drums, round — all sizes.

Mailing tubes, open and closed ends, all dimensions and weights prepared according to specifications.

Display boxes for specialties, with die cut liners for soaps, perfumes, drugs and other commodities.



Fancy boxes for jewelry, perfume, soap, hairpins, knives, stickers, etc.

Metal tab mailing boxes, Kraft covered, of unusual strength in all sizes and weights.

SEELEY TUBE AND BOX COMPANY

140–170 THOMAS ST.

NEWARK, N. J.

TRAUTMANN, BAILEY & BLAMPEY

CAR CARDS - CUT OUTS - BOOKLETS - ADVERTISING DISPLAYS - PROCESS OFFSET PRINTING

COLOR & OFFSET LITHOGRAPHERS

13 Laight Street, New York

FANCY FLORAL AND HOLIDAY PAPERS - LABELS - DRY GOODS TICKETS - BOX WRAPS

ART PAPER AND BOX-WRAP DEPARTMENT

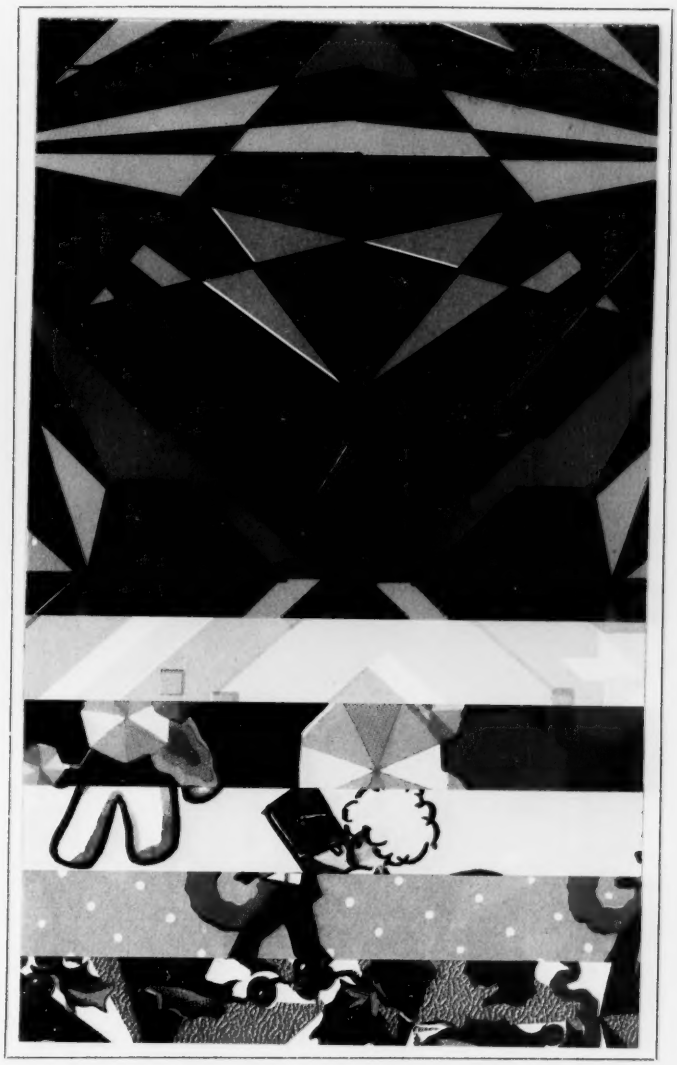
T. B. & B. LITHOGRAPHED ART PAPERS

Designed for PAPER BOXES, PACKAGES and ART PURPOSES

Your merchandise should have the advantage of the utmost attractiveness that beautiful and appropriate packaging can impart. The outer covering is the first thing that will meet the prospective purchaser's eye, and your competitor is not neglecting this element in silent salesmanship, whose importance is being increasingly better understood.

We have devoted sixteen years to an intensive study of this subject and can with entire accuracy and conservatism refer to our generally conceded leadership in this field.

The results of our experience are placed at the disposal of those who have goods to sell in first-class packages, and investigation is invited of the T. B. & B. Line of 100 Lithographed ART PAPERS shown in our Catalog, covering a broad range of subjects, color combinations and types of design.



MEMBER OF

NATIONAL PAPER BOX MANUFACTURERS ASSOCIATION PAPER BOXES

THE STANLEY WORKS

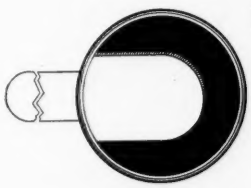
Box Strapping Division
New Britain, Conn.

100 Lafayette St., New York City
108 Broad St., Boston, Mass.
7302 Germantown Ave., Phila., Pa.
1195 Westlake Ave., Cleveland, Ohio
Cross-Glave Co., 410 S. Franklin St., Syracuse, N. Y.
552 Murphy Ave., Atlanta, Ga.
P. O. Box 424, Charlotte, N. C.
P. O. Box 24, East Michigan St. Station, Indianapolis, Ind.
G. C. Drury Co., 420 Union St., Nashville, Tenn.
61 W. Kinzie St., Chicago, Ill.
E. G. Artz Co., 758 N. Water St., Milwaukee, Wisc.
1905 S. Carrollton Ave., New Orleans, La.
2605 Washington Ave., Waco, Tex.
912 Garrett Bldg., Baltimore, Md.
619 Mutual Life Bldg., Seattle, Wash.
364 6th St., San Francisco, Calif.
576 Monadnock Bldg., San Francisco, Calif.
311½ So. Spring St., Los Angeles, Calif.

BOX STRAPPING, BALE TIES, CORRUGATED FASTENERS CUTTING, TIGHTENING AND SEALING EQUIPMENT

"Eversafe" Nailless Strapping

Several distinct improvements have been incorporated in Stanley "Eversafe" Strapping which eliminate the dangers of ordinary strapping and make it absolutely safe to work with.



Round Safety Ends

No sharp corners to cut or scratch hands.

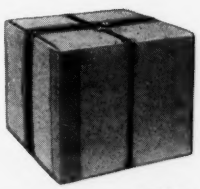
Round Safety Edges

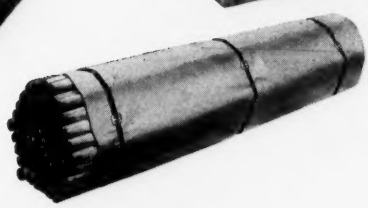
Edges are definitely rounded so that the strapping may be grasped firmly without cutting the hands.

Hard, Smooth Japan Finish

A smooth, clean finish which makes "Eversafe" strapping much safer to work with.

"Eversafe" is furnished in all standard sizes in mill coils of continuous lengths. Supplied either coiled single or coiled double as desired.





Stanley Type "D" Seals

"D" Type Seal as illustrated by actual tests makes the strongest joints ever produced.

Universal Tightening Tool Sealing Tool

Stanley Tightening and Sealing Tools are fast, efficient, sturdy and simple to operate.

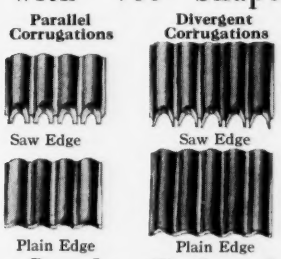
"Eversafe" Round End Cutter (Patented)

This ingenious device cuts two Round Safety Ends at one clip. A wonderful improvement over ordinary strapping shears.

The Stanley "Eversafe" Nailless System

The outstanding equipment for today's shipping department.

Stanley Corrugated Joint Fasteners with "Vee" Shaped Corrugations



They drive easier and make stronger joints than ordinary fasteners with round corrugations.

Stanley Pail and Tub Fasteners

For fastening covers securely.

Box and Crate Fasteners

When is a Paper Bag not a Paper Bag ?

Ans: When Union designers and craftsmen transform it into an attractive, attention-compelling *Shelf Package.*

The above illustration is an actual photograph of a group of representative Union Fancy Duplex Bags. They offer all the display-quality and sales-appeal of more expensive containers—at from a quarter to a half of the cost!

We are indebted to the following companies for permission to reproduce the bags shown above:

Louisiana State Rice Milling Co.
Donahoe's Coffee
Western Grocer Co.
Thos. J. Lipton, Inc.
Coffee Roasters
Standard Brands of California
Black Brothers Flour Mills
Independent Grocers Alliance Distributing Co.

Let a Union Packaging Engineer help you cut costs

UNION BAG & PAPER CORPORATION

TRADE MARK UNION

Representatives in all Principal Cities

GENERAL OFFICES • WOOLWORTH BUILDING • NEW YORK, N. Y.

Phantom Papers prove Profitable for You

Check the Reasons

- ATTRACTIVENESS ✓
- INEXPENSIVE ✓
- NO WHITE CORNERS ✓
- FAST PRODUCTION IN THE BOX SHOP ✓
- UNIFORMITY ✓
- LASTING QUALITIES ✓
- ORIGINAL DESIGNS ✓
- AVAILABLE PROMPTLY ✓

HAZEN PAPER CO

MAKERS OF DISTINCTIVE PAPERS
HOLYOKE, MASSACHUSETTS

YOU incur no obligation by sending for sample book of

160 Choices

Your own trademark can be embossed on any of our standard or special colored papers. Details will be sent on request.

This is a sample of Phantom Character No. 1186

Outstanding! at the POINT of SALE

Those who lift their product above the horde to INDIVIDUALITY use

PERFECT-D-CUT
REG. U.S. PAT. OFF.
EMBOSSED SEALS

Created and Produced only in the shops of

The TABLET & TICKET CO.

SINCE 1870

115 E. 23rd ST. NEW YORK
1021 W. ADAMS ST. CHICAGO
407 SANSOME ST. SAN FRANCISCO

METAL - FOIL - PAPER - LEAF
GUMMED or UNGUMMED
ONE - TWO OR THREE COLORS

Our Designing and Planning Departments Invite Consultation

AND OTHER NEW
BRILLIANT COVERINGS
TO BE RELEASED IN
1931

1931 American Beauty Fancy Papers
from $2.75 ream up

Waterproof Non-Tarnishing Gold & Silver Papers

Regalite--The Brilliant Fancy Waterproof Cloth

Sealon Waterproof Embossed Cloth

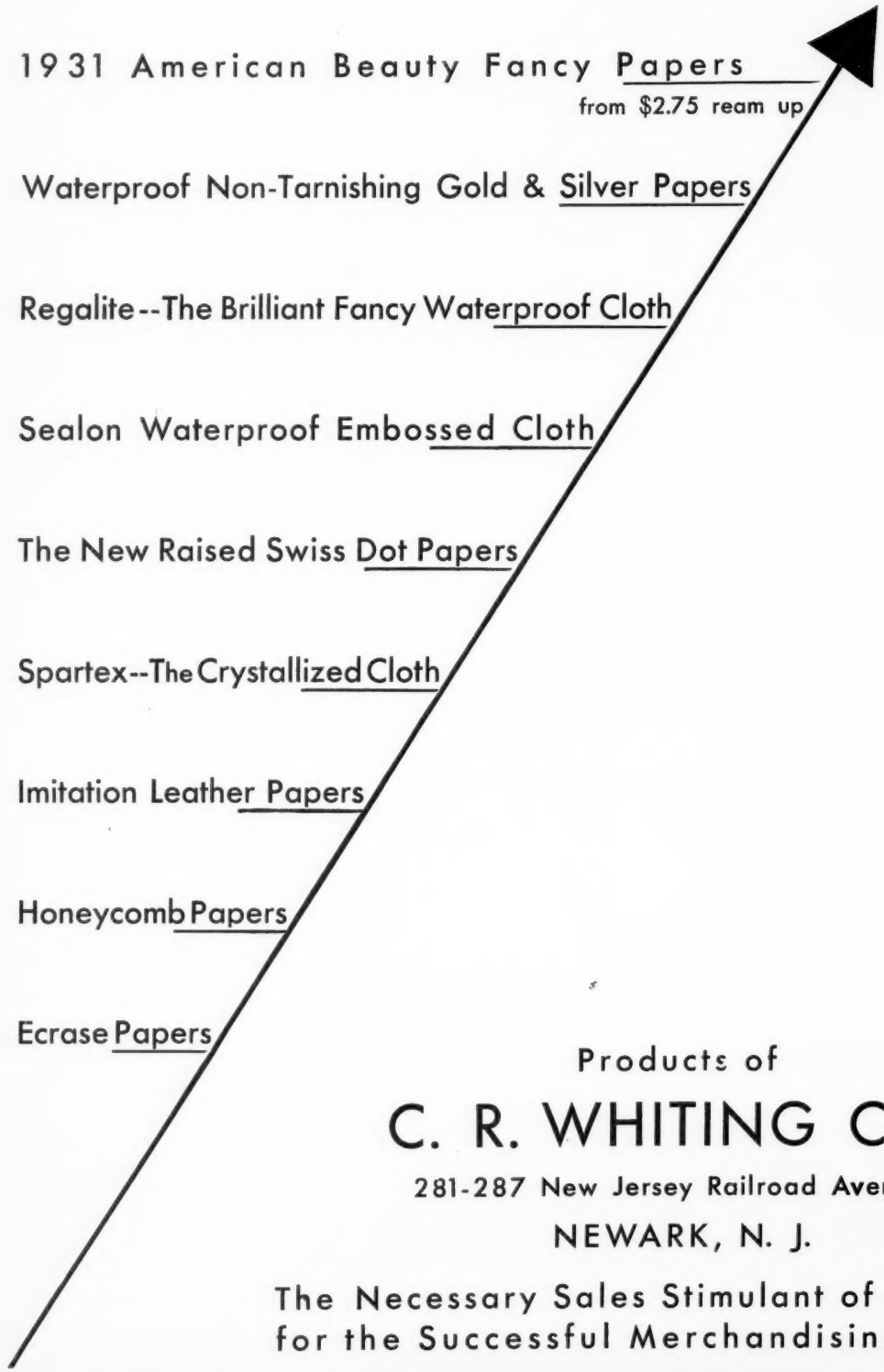
The New Raised Swiss Dot Papers

Spartex--The Crystallized Cloth

Imitation Leather Papers

Honeycomb Papers

Ecrase Papers



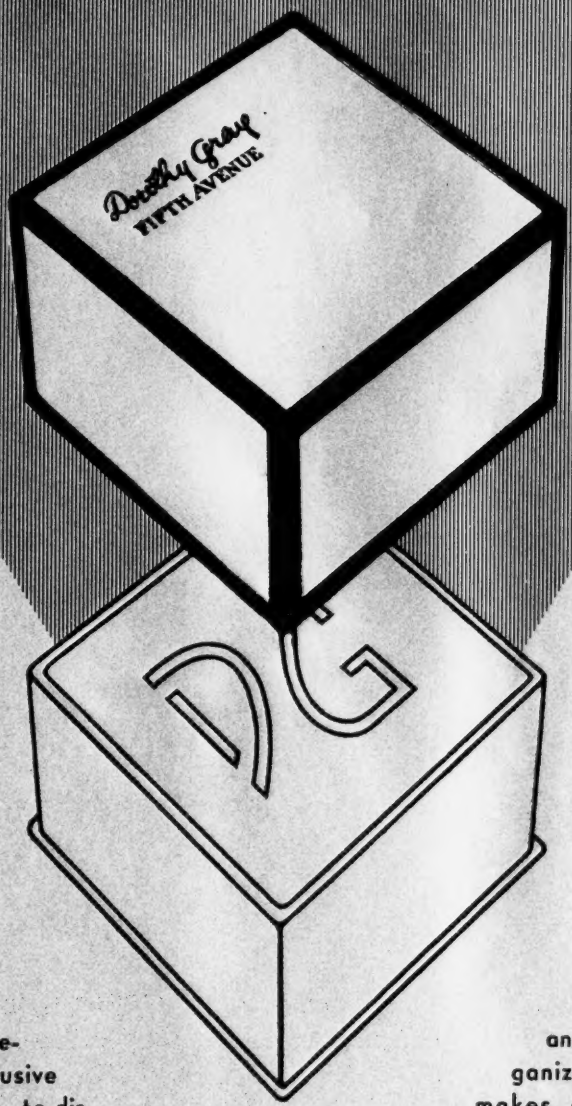
Products of

C. R. WHITING CO.

281-287 New Jersey Railroad Avenue

NEWARK, N. J.

The Necessary Sales Stimulant of Originality
for the Successful Merchandising Package



Exclusive products demand exclusive packages . . . to display the product properly, to gain a quality appeal and to convey prestige. A Waterbury hand-made box assures a handsome appearance. Its sturdy but fine construction conveys an impression of the quality of the product and the organization. It makes a perfect package for a perfect product. Set up boxes for perfumery, jewelry, pencils, pens, leather goods, pipes, writing paper, candy and other products which convey a quality appeal to the discriminating consumer.

Waterbury Paper Box Co.

Factory and Main Office

Waterbury, Conn.

New York Office	*Chicago Office*	*Cincinnati Office*	*San Francisco Office*
F. L. Butz	Charles A. Rindel, Inc.	William T. Nesbitt, Jr.	Chas. H. Curry
100 East 42nd St.	64 W. Randolph St.	1402 Walnut St.	1334 Van Ness Ave.

Silver Paper Manufactured by
Artcote Papers, Inc., Irvington, N. J.

Stamping by Peerless Roll Leaf Co.
Union City, N. J.

TRANSCELLO

THE • ECONOMICAL • TRANSPARENT • PAPER

Highly Transparent
Most Economical
Lustrous
Soft, Pliable, Strong

•

Sterile, Sanitary
Greaseproof
Waterproof
Moistureproof

SUPERIOR PRINTING QUALITIES

TRANSCELLO

Can be used to advantage wherever any or all of the above characteristics are desired.

Makes a beautiful, lustrous, transparent wrapper — a valuable merchandising aid.

Produces that value atmosphere and artistic touch so necessary and important to the individual package.

Dustproof — moistureproof and airproof — keeps the goods fresh, clean and untouched until used by the consumer.

Is available in fifteen, twenty and twenty-five pound stock. The attached is a sample of twenty pound Transcello.

Write For Prices

TRANSCELLO PAPER CO.

MANUFACTURERS OF TRANSPARENT PAPER

710 W. VIRGINIA ST. MILWAUKEE, WIS.

WILLIAMSON Industrial Adhesives

Who is qualified to solve your packaging problem?

FOR the past seventeen years, it has been our privilege to supply leading manufacturers with Odorless Liquid Glues and Pastes for a wide range of package sealing and labeling operations.

Today's demand for high speed production on modern packaging machinery is fully met by our quick-setting adhesives of maintained uniformity. Their use on automatic cartoning and wrapping machines assures maximum output and perfect packages. For sealing transparent cellulose wraps, our sanitary colorless adhesives give superior satisfaction, and are steadily used by nationally known concerns.

In our long service to the packaging industry, we have developed many successful glue formulas — waterproof gums for spot labels on tin, separate end seal paste, adhesives for new materials with variously coated surfaces, glues for tight-wrapping, loose-wrapping and tube-winding. The results we have achieved are represented by a cabinet display of hundreds of sample packages sealed with our glues — a source of facts for the service of our customers.

Our ability to determine the proper adhesive for your particular purpose comes from our experience — and the practical application of glue chemistry to your special problem.

MANUFACTURERS
of
CELLO-ADHESIVES

Sanitary, odorless, colorless Adhesives for sealing transparent cellulose products, joining to glassine, or to cardboard in making window-box cartons. Used cold for hand or machine application. Suitable for plain or moistureproof cellulose papers, insuring permanent adhesion and smooth, flexible, invisible joints.

Williamson Cello-Adhesives are widely used in the food products industry and other industries, employing cello-wraps. They are endorsed by manufacturers of cellulose wrapping materials, and by machine builders specializing in cellulose wrapping operations. **Write for folder.**

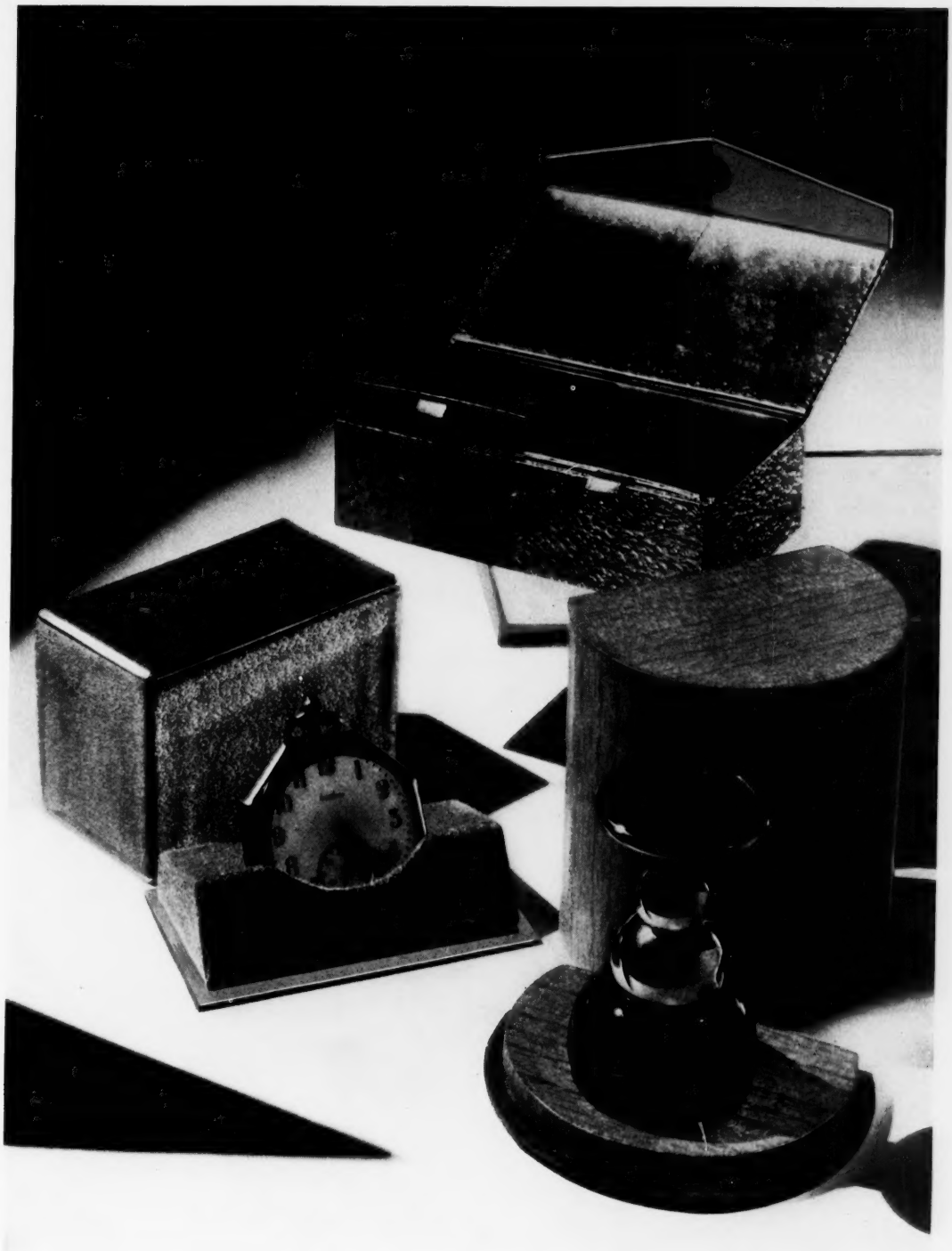
If you have a problem, come to headquarters for information. Trial sample of adhesive sent on request.

WILLIAMSON GLUE AND GUM WORKS

Incorporated 1914

2350 West Eighteenth Street, Chicago, Illinois

We do not believe there is any substitute for quality



KARL VOSS CORPORATION

MANUFACTURERS OF PAPER BOXES

Lipton Bldg., Fifteenth St., Hoboken, N. J.

KARL VOSS CORPORATION

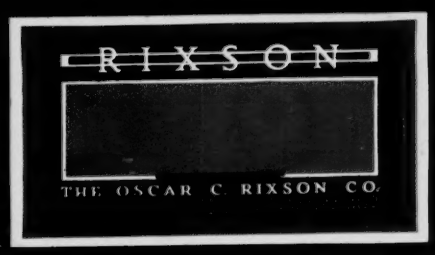
MANUFACTURERS OF PAPER BOXES

Lipton Bldg., Fifteenth St., Hoboken, N. J.

SHUMAN LABELS

meet present day label requirements

your LABELS are traveling Bill Boards and should be REAL advertising



THE FRANK G. SHUMAN CO.

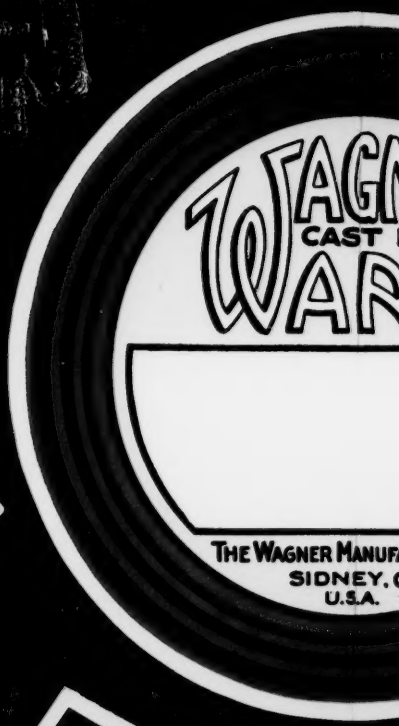
771 W. Jackson Blvd., **CHICAGO**

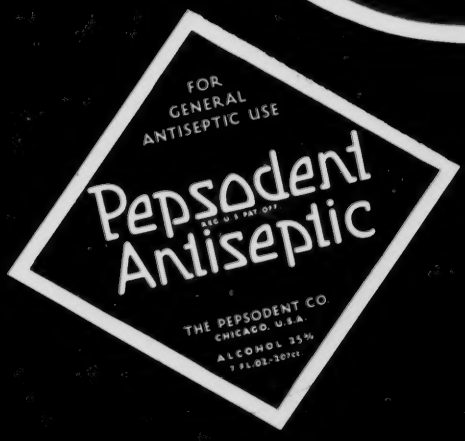
XUM

SHUMAN LABELS

meet present day label requirements

ALL KINDS · A



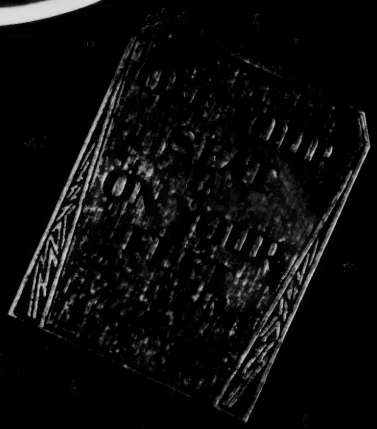


THE FRANK G

771 W. Jackson B

XUM

DS - ALL GOOD



G. SHUMAN CO.

n Blvd., CHICAGO

XUM

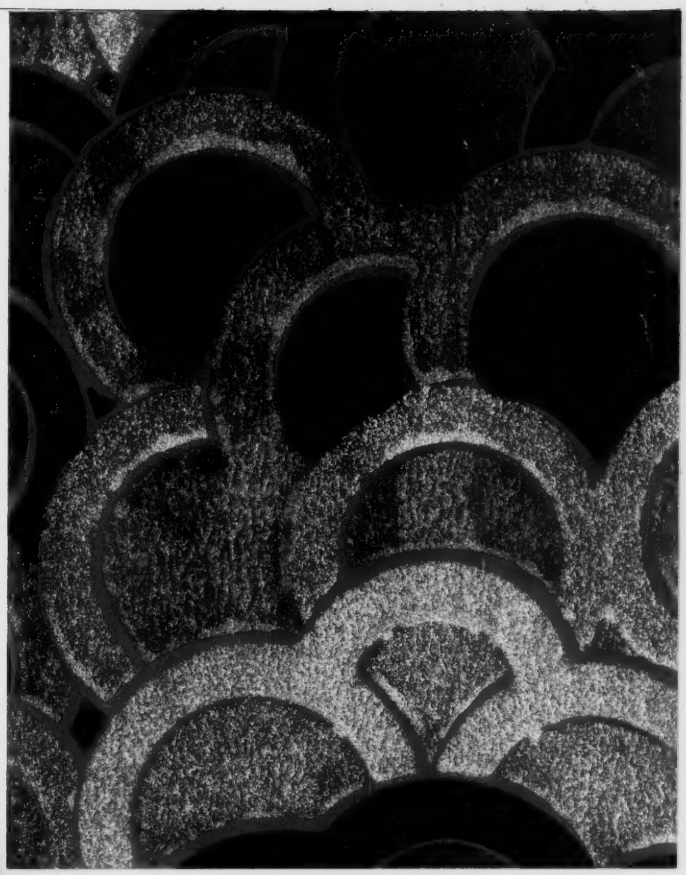
SHUMAN LABELS

the "POINT OF CONTACT"

Your label is your representative at this point • Just in that moment of indecision—when a customer is making his choice • Your label can either "clinch" or "lose" the sale • For often the eyes are judge and jury so far as first sales are concerned, and surely, more than anything else, *your label* has the power to suggest the character of your product • And the product that looks like quality has the edge on all the rest.

THE FRANK G. SHUMAN CO.
771 W. Jackson Blvd., **CHICAGO**

XUM



The package of today must please the eye as well as stand abuse.

It is for this reason that Whiting-Patterson papers have always served as a source of inspiration, not only to the exacting manufacturer, but also to the discriminating consumer.

Catalogs and sample sheets are available from

WHITING-PATTERSON CO., INC.

386 FOURTH AVENUE, NEW YORK

BOSTON - PHILADELPHIA - CHICAGO - MINNEAPOLIS
ST. PAUL - SAN FRANCISCO - SEATTLE

EMBOSSED PAPERGLAS

WHENEVER it is necessary to express the idea of Beauty in a package Embossed Paperglas supplies the needed touch. Its transparent artistry instantly transforms whatever it encloses and invests it with a richness of instant appeal.

"Beautifies Whatever It Encloses"

For a thousand and one articles of every day use Embossed Paperglas can be made an integral part of the product—for wrapping food products, candy and confections, toilet preparations, textiles, books, medicinals, papetries, etc.

Made in Nineteen Distinctive Designs

Nineteen embossed patterns covering a wide range of design suitable for every purpose. When desired, special designs will be supplied for trade mark and exclusive uses. All in 25 pound basis.

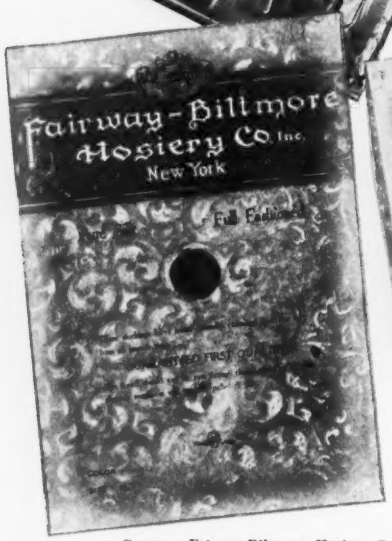
Ask Your Jobber or Write Us Direct

WESTFIELD RIVER PAPER CO.,
INC.
RUSSELL, MASSACHUSETTS
New York Office: 501 Fifth Ave.

Courtesy R. M. Haan Candy Company.

Courtesy Frank L. Shattuck Co.

Courtesy Beech-Nut Packing Co.



Courtesy Fairway-Biltmore Hosiery Co.

Courtesy American Cigar Co.

Courtesy Bayuk Cigars, Inc.

Peerless Tubes are to be found everywhere...

PEERLESS TUBES PRESERVE &

in the kitchen, the bathroom, on the train, in the

OUTLAST THEIR CONTENTS

boat or in the studio, in fact wherever convenient and sanitary packaging is desired by the consumer. But while the manufacturer appreciates this, he chooses Peerless Tubes because of their close allegiance to specifications that ensure proper side wall thickness, shoulder weight, proper thread cutting and other details peculiar to the tube industry; in addition Peerless lithography increases sales. Peerless Tubes are creating markets and opening new outlets for products like boullion and hand soap, hithertofore packaged along ordinary channels. Your product, too, has potentialities for more

PEERLESS TUBE COMPANY

effective merchandising in collapsible tubes. Write and ask to see samples

70 LOCUST AVE., BLOOMFIELD, N.J.

of these tubes which preserve and

OUTLAST THEIR CONTENTS

MERLE

ANY BOX, ANY SIZE

Competent designers are ever ready to create a paper box for your product, no matter how individual the product or how peculiar are its physical characteristics.

A plant equipped to handle enormous quantities of boxes enables us to produce your orders whether they run from one thousand boxes to a million or more . . . and to get them out in record time and on time at a price consistent with efficient production methods and low operating costs.

MERLE

PAPER BOX COMPANY

SEARS

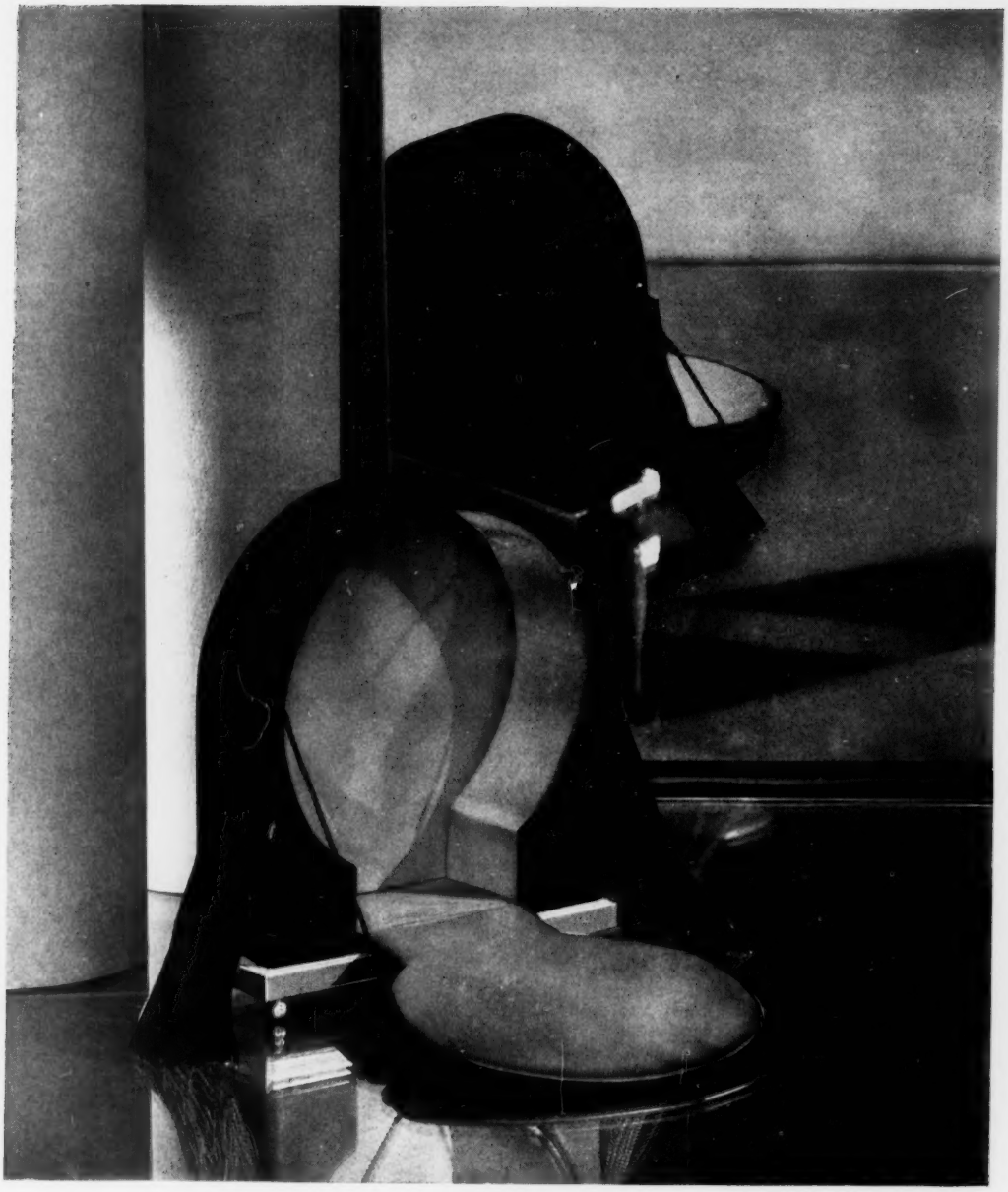
ANY QUANTITY, ANY TIME

We welcome the opportunity to prove to you that we can handle any box, any size, and any quantity at any time. Just mail your specifications.

A plant equipped to handle enormous quantities of boxes enables us to produce your orders whether they run from one thousand boxes to a million or more . . . and to get them out in record time and on time at a price consistent with efficient production methods and low operating costs.

S E A R S

DANVILLE, ILLINOIS



Courtesy Karl Voss Corp.

BEAUTY AND CHARACTER

BEAUTY and character in a container as in a human being is a reflection of what's under the surface.

The exquisite perfume container portrayed is produced from ROYAL SATIN BOARD and will always retain its form and neatness.

If you want containers which will stand the abuse of time with undiminished form and beauty, play safe and specify—

ROYAL SATIN
Reg. U. S. Pat. Off.

"The Perfect Board for Quality Containers"

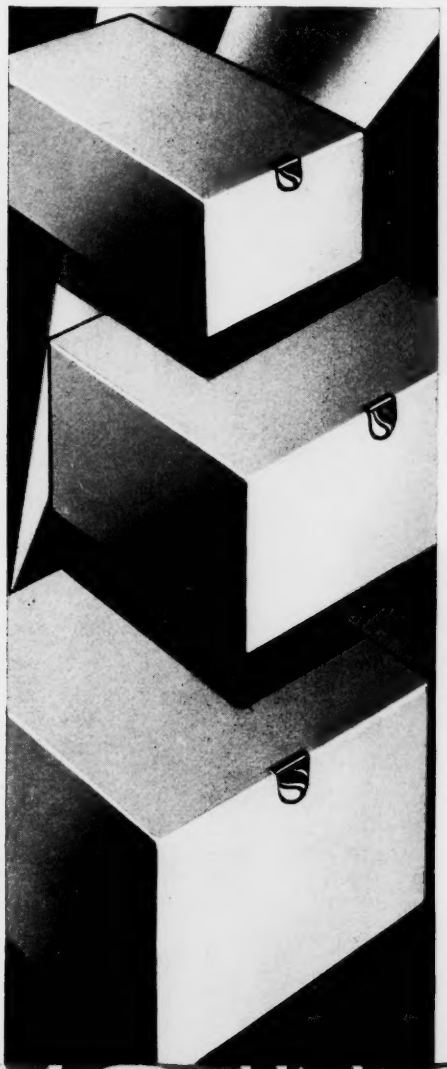
THE BUTTERFIELD-BARRY COMPANY
174 Hudson Street, New York, N. Y.

Buffalo Dist:
Maurice W. Simon
Buffalo, N. Y.

New England Dist:
Baird & Bartlett Co.
Boston, Mass.

Packag

"GO-SAFE" MAILERS



A TWO OUNCE POUND OF CURE

Mailmen are nice, gentle creatures. But one would never know it judging by the way they treat your postal packages.

There is only one sure way of preventing the cute little carton-slingers from reducing your favorite package to mince meat. That is—no, not armor plate—merely the use of "GO-SAFE" Mailers.

These little boxes are the two-ounce preventives worth a pound of cure. Long years of failure to break them have taught the mail-maulers that any box bearing the Young Brothers' label is indestructible—they've given up and let them pass with a sigh—let them pass in perfect condition.

As for cost—why, no more than any other type of package. Let us hear from you—a post card stating your problem will bring our answer the "Go-Safe" way.

YOUNG BROTHERS
INCORPORATED
PROVIDENCE, R.I.

MAKERS OF PAPER BOXES FOR OVER FIFTY YEARS

Buyer's Directory Section

THE policy of the PACKAGING CATALOG in the Directory Section is to list every reliable American manufacturer of machinery, equipment or supplies selling to the packaging industries (as far as we can locate them) without charge under as many headings as is required for an adequate showing of their products. It is only by this policy that the directory can be made representative of the facilities of the entire packaging field.

All concerns represented in the catalog section of this volume are listed in bold face type under appropriate headings and further prominence is conferred by giving in each instance the page or pages upon which their data appears. This feature serves as a time saver and it is believed will increase the detailed information and data packaging concerns seek.

The recommendation is earnestly made that the Directory be used in conjunction with the Catalog pages, as much valuable information can be found concerning products, if reference is made to the concerns whose page numbers are given under the various subject headings.

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listing

ABSORBENT WADDING

International Paper Co., New York, N. Y.
Kimberly-Clark Co., Neenah, Wis.—148–149

ADHESIVES

Adex Mfg. Co., Baltimore, Md.
Arabol Mfg. Co., New York, N. Y.—84
Cibara Mfg. Co., St. Louis, Mo.
Consumers Glue Co., St. Louis, Mo.
Crescent Products Co., Terre Haute, Ind.
Dewey & Almy Chemical Co., Cambridge, Mass.
Ermold Co., Edward, New York, N. Y.—108
Findley Co., F. G., Milwaukee, Wis.
Gane Bros. & Lane, Inc., Chicago, Ill.
Grasselli Chemical Co., Cleveland, O.
Leyland Co., Inc., Thos., Readville, Mass.
Mechling Chemical Co., Camden, N. J.
National Adhesives Co., New York, N. Y.
Philadelphia Quartz Co., Philadelphia, Pa.
Russia Cement Co., Gloucester, Mass.
Standard Sealing & Equipment Corp., Long Island City, N. Y.
Stein-Hall & Co., New York, N. Y.
Williamson Glue & Gum Works, Chicago, Ill.—184

AIR CONDITIONING APPARATUS

Cooling & Air Conditioning Corp., New York, N. Y.
Carrier Engineering Corp., Newark, N. J.
York Heating & Ventilating Co., Philadelphia, Pa.
Maryland Air Conditioning Co., Baltimore, Md.

AUTOMATIC CARTON LOADING MACHINES

Anderson, Inc., E. D., New York, N. Y.—144–145
Automat Molding and Folding Co., Toledo, O.—82–83
Cartoning Machinery Corp., Newport, R. I.—92
Ferguson Co., J. L., Joliet, Ill.—109–112
Jones & Co. Inc., R. A., Covington, Ky.
Redington Co., F. B., Chicago, Ill.

AUTOMATIC PACKAGING MACHINERY

American Machine & Foundry Co., Brooklyn, N. Y.
Anderson, Inc., E. D., New York, N. Y.—144–145
Arenco Machine Co., Inc., New York, N. Y.
Automat Molding & Folding Co., Toledo, O.—82–83
Automatic Packaging Machinery Co., Nashua, N. H.
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Brown Bag Filling Machine Co., The, Fitchburg, Mass.—88
Cartoning Machinery Corp., Newport, R. I.—92
Colton Co., Arthur, Detroit, Michigan—93
Consolidated Packaging Machinery Corp., Buffalo, N. Y.—94
Ferguson Co., J. L., Joliet, Ill—109–112
Hesser Machine Co., New York, N. Y.
International Packaging Machinery Co., Chicago, Ill.—157
Package Machinery Co., Springfield, Mass.—162–163
Peters Machinery Co., Chicago, Ill.—158
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Redington Co., F. B., Chicago, Ill.
Scale & Machinery, Inc., New York, N. Y.
Stokes Machine Co., F. J., Philadelphia, Pa.—174
Stokes & Smith Co., Philadelphia, Pa.—168–169
Triangle Package Machinery Co., Chicago, Ill.

BAGS, BURLAP, COTTON

American Bag Co., Memphis, Tenn.
American Mills Co., Atlanta, Ga.
Bartley Mfg. Co., New York, N. Y.
Bell Bag Co., Inc., Baltimore, Md.
Bemis Bros. Bag Co., St. Louis, Mo.
Central Bag Mfg. Co., Chicago, Ill.
Chase Bag Co., St. Louis, Mo.
Cleveland-Akron Bag Co., Cleveland, O.
Feitel, Dan W., Bag Co., New Orleans, La.
Fulton Bag & Cotton Mills, Atlanta, Ga.
National Bag Co., Naperville, Ill.
Philadelphia Bag Co., Philadelphia, Pa.

BAGS (Mailing)

Bemis Bros. Bag Co., St. Louis, Mo.
Chase Bag Co., Cleveland, O.
Cleveland-Akron Bag Co., Cleveland, O.
Disbrow Mfg. Co., Inc., The, Newark, N. J.
Mason Box Co., The, Attleboro Falls, Mass.—Insert 150–151
Milwaukee Bag Co., Milwaukee, Wis.
National Bag Co., Naperville, Ill.

BAGS (Paper)

American Paper Goods Co., Kensington, Conn.—81
Angier Corp., Framingham, Mass.
Arkell & Smith, Canajoharie, N. Y.
Atlanta Paper Co., Atlanta, Ga.
Bates Valve Bag Co., New York, N. Y.
Bell Bag Co., Inc., Baltimore, Md.
Bemis Bros. Bag Co., St. Louis, Mo.
Betner Co., Ben C., Devon, Pa.
Brown Paper Goods Co., Chicago, Ill.
California Bag & Paper Co., Emeryville, Cal.
Chase Bag Co., Cleveland, O.
Chatfield & Woods Co., Cincinnati, O.
Chicago-Detroit Bag Co., Chicago, Ill.
Cleveland-Akron Bag Co., Cleveland, O.
Columbia Paper Bag Co., Baltimore, Md.
Continental Paper & Bag Mills, New York, N. Y.
Disbrow Mfg. Co., Inc., The, Newark, N. J.
E-Z Opener Bag Co., Decatur, Ill.
Fulton Bag & Cotton Mills, Atlanta, Ga.
Hercules Paper Bag Co., Reading, Pa.
Hollis & Duncan, Chicago, Ill.
Hudson Bag Co., Brooklyn, N. Y.
Jaite Co., Jaite, O.
Milwaukee Bag Co., Milwaukee, Wis.
National Paper Co., Atlanta, Ga.
Oneida Paper Products, Inc., Brooklyn, N. Y.—156
Orchard Paper Co., St. Louis, Mo.
Raymond Bag Co., The, Middletown, O.
Royal, Thos. M. & Co., Philadelphia, Pa.
Taggart Bros. Co., New York, N. Y.
Tuttle Press Co., The, Appleton, Wis.
Unger-Commercial Co., The, Cleveland, O.
Union Bag & Paper Corp., New York, N. Y.—180
Union Paper & Twine Co., Cleveland, O.
U. S. Paper Goods Co., Cincinnati, O.
Valve Bag Co. of America, Toledo, O.
Wayne Paper Goods Co., Ft. Wayne, Ind.
Wortendyke Mfg. Co., Richmond, Va.

BAGS, Specialty

Bemis Bros. Bag Co., St Louis, Mo.
Betner Co., Ben C., Devon, Pa.
Continental Paper & Bag Corp., New York, N. Y.
Disbrow Mfg. Co., Newark, N. J.
Milwaukee Printing Co., Milwaukee, Wis.
Oneida Paper Products Inc., Brooklyn, N. Y.—156
Royal Co., Thomas M., Philadelphia, Pa.
Union Bag & Paper Corp., New York, N. Y.—180

BAGS, TRANSPARENT PAPER (Glassine, Transparent Cellulose, Waxed Paper)

American Paper Goods Co., Kensington, Conn.—81
American Tissue Mills, Holyoke, Mass.
Bemis Bros. Bag Co., St. Louis, Mo.
Brown Bag Filling Machine Co., Fitchburg, Mass.—88
Brown Paper Goods Co., Chicago, Ill.
Betner Co., Ben C., Devon, Pa.
Central Waxed Paper Co., Chicago, Ill.
Continental Paper & Bag Corp., New York, N. Y.
Deerfield Glassine Co., Monroe Bridge, Mass.—Insert 172–173
Disbrow Manufacturing Co. Inc., The, Newark, N. J.
Du Pont Cellophane Co., Inc., New York, N. Y.
Grand Lakes Co., New York, N. Y.
Hartford City Paper Co., Hartford City, Ind.
Herz Co., Alexander, New York, N. Y.
McDowell Paper Mills, Philadelphia, Pa.
Matthias & Freeman Paper Co., Philadelphia, Pa.
Menasha Products Co., Chicago, Ill.
Milwaukee Printing Co., Milwaukee, Wis.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
Newark Glassine Bag Co., Newark, N. J.
Newark Paraffine & Parchment Paper Co., Newark, N. J.—150
Oneida Paper Products, Inc., Brooklyn, N. Y.—156
Orchard Paper Co., St. Louis, Mo.
Package Paper Co., Holyoke, Mass.
Riegel Paper Corp., New York, N. Y.—170
Royal Co., Thomas M., Philadelphia, Pa.
Shamut Waxed Paper Co., Holliston, Mass.
Sylvania Industrial Corp., New York, N. Y.—Insert 164–165
Transparent Packaging & Prtg. Co., New York, N. Y.
Unger-Commercial Co., The, Cleveland, O.
Union Bag & Paper Corp., New York, N. Y.—180
United States Envelope Co., Springfield, Mass.
Westfield River Paper Co., Inc., Russell, Mass.—188

BAG SEALING MACHINES

Anderson, Inc., E. D., New York, N. Y.—144–145
Brown Bag Filling Machine Co., Fitchburg, Mass.—88
Consolidated Packaging Machinery Co., Buffalo, N. Y.—94
Ferguson Co., J. L., Joliet, Ill.—109–112
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.—87
Saranac Bag Sealers, Inc., Benton Harbor, Mich.—171

BALE TIES

Acme Steel Co., Chicago, Ill.—80
American Steel & Wire Co., Chicago, Ill.
Gerrard Co., Inc., Chicago, Ill.
Grammes, L. F., & Sons, Allentown, Pa.
Roeblings, John, & Sons Co., Trenton, N. J.
Shelby Wire Co., Shelby, O.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.—179
Tennant & Sons, Inc., C. W., New York, N. Y.

BALING PRESSES

Davenport Mfg. Co., Davenport, Ia.
Galland-Henning Co., Milwaukee, Wis.
Logemann Brothers Co., Milwaukee, Wis.
Trojan Mfg. Co., Grand Rapids, Mich.

BARREL HEAD LINERS

Angier Corp., Framingham, Mass.
Consolidated Paper Co., Monroe, Mich.—141
Edgewater Paper Co., Menasha, Wis.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—Insert 106–107
Hinde & Dauch Paper Co., Sandusky, O.—114
Hummel & Downing Co., Milwaukee, Wis.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—116
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
Paterson Parchment Paper Co., Passaic, N. J.
Rexford Paper Co., Milwaukee, Wis.
Safepack Mills, Millis, Mass.
West Carrollton Parchment Co., West Carrollton, Ohio.

BARRELS, SLACK

Farmers Mfg. Co., Norfolk, Va.
Fessenden Companies, Inc., Townsend, Mass.
Greif Bros. Cooperage Co., Cleveland, O.
K. W. Jacobs Cooperage Co., Milwaukee, Wis.
Mancuso Cooperage Co., Inc., Kenner, La.
Sandusky Cooperage & Lumber Co., St. Louis, Mo.
St. Louis Cooperage Co., St. Louis, Mo.
The Virginia Barrel Co., Winchester, Va.

BARRELS (Steel)

Atlas Steel Barrel Corp., New York, N. Y.
Cleveland Steel Barrel Co., Cleveland, O.
Draper Mfg. Co., Cleveland, O.
Hydraulic Pressed Steel Co., Cleveland, O.
Knapp Metal Barrel Co., San Francisco, Cal.
Mahoning Steel Products Co., Warren, O.
National Enameling & Stamping Co., New York, N. Y.
National Steel Barrel Co., Cleveland, O.
Ohio Corrugating Co., Warren, O.
Petroleum Iron Works Co., Sharon, O.
Toledo Steel Barrel Co., Toledo, O.

BARRELS, TIGHT

Atlantic Tank & Barrel Corp., North Bergen, N. J.
Fessenden Companies Inc., Townsend, Mass.
C. G. Hopkins Cooperage Co., Joplin, Mo.
K. W. Jacobs Cooperage Co., Milwaukee, Wis.
Northern Cooperage Co., St. Paul, Minn.
Pekin Cooperage Co., Pekin, Ill.
Sandusky Cooperage & Lumber Co., St. Louis, Mo.
St. Louis Cooperage Co., St. Louis, Mo.
B. C. Sheahan Co., Chicago, Ill.
Western Cooperage Co., Portland, Ore.

BASKETS, DELIVERY

Backus, A., Jr. & Sons, Detroit, Mich.
Burlington Basket Co., Burlington, Ia.

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listing

Fibopak Co., Chicago, Ill.
Gereke-Allen Carton Co., St. Louis, Mo.
Lewis Co., Inc., G. B., Watertown, Wis.
Richardson Co., The, Lockland, Ohio.
Unger-Commercial Co., The, Cleveland, O.

BILLS OF LADING
(Invoices, Shipping Forms, Etc.)

American Sales Book Co., Elmira, N. Y.
Egry Register Co., Dayton, O.
Gilman Fanfold Co., Niagara Falls, N. Y.
Milwaukee Printing Co., Milwaukee, Wis.
Standard Register Co., Dayton, O.

BOARD, OILED
(Rolls and Sheets)

Bradley Stencil Machine Co., St. Louis, Mo.
Diagraph Stencil Machine Corp., St. Louis, Mo.
Marsh Stencil Machine Co., Belleville, Ill.

BOTTLES (Glass)

Atlantic Bottle Co., Brackenridge, Pa.
Capstan Glass Co., Connellsville, Pa.
Carr-Lowery Glass Co., Baltimore, Md.
Cunningham Glass Co., D. O., Pittsburgh, Pa.
Fairmont Glass Works, Indianapolis, Ind.
Glass Products Co., Vineland, N. J.
Hart Glass Mfg. Co., Dunkirk, Ind.
Hazel-Atlas Glass Co., Wheeling, W. Va.
Maryland Glass Corp., Baltimore, Md.—Insert 142–143
Nivison-Weiskopf Co., Cincinnati, O.
Olean Glass Co., Olean, N. Y.
Owens-Illinois Glass Co., Toledo, O.
Reed Glass Co., F. E., Rochester, N. Y.
Root Glass Co., Terre Haute, Ind.
Swindell Bros., Baltimore, Md.
Turner Glass Co., Terre Haute, Ind.
Tygart Valley Glass Co., Washington, Pa.
Wheaton, T. C., Millville, N. J.

BOTTLES (Glass, fancy)

Carr-Lowery Glass Co., Baltimore, Md.
Hazel-Atlas Glass Co., Wheeling, W. Va.
Maryland Glass Corp., Baltimore, Md.—Insert 142–143
Nancy Crystal Co., New York, N. Y.
Owens-Illinois Glass Co., Toledo, O.
Swindell Bros., Baltimore, Md.
Turner Glass Co., Terre Haute, Ind.
Wheaton, T. C., Millville, N. J.

BOX BOARD PAPER (Coated)

American Coating Mills, Elkhart, Ind.
Butterfield-Barry Co., New York, N. Y.—192
Container Corp. of America, Chicago, Ill.—96
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—Insert 106–107
Gair Co., Robert, New York, N. Y.
Lowe Paper Co., Ridgefield, N. J.—Insert 184–185
National Folding Box Co., New Haven, Conn.
United Paperboard Co., Inc., New York, N. Y.
Wabash Coating Mills, Wabash, Ind.

BOX BOARD PAPER (Folding)

Alton Box Board & Paper Co., Alton, Ill.
American Coating Mills, Elkhart, Ind.
Butterfield-Barry Co., New York, N. Y.—192
Cherry River paper Co., Philadelphia, Pa.
Consolidated Paper Co., Monroe, Mich.—141
Container Corp. of America, Chicago, Ill.—96
Federal Paperboard Co., Inc., Bogota, N. J.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—Insert 106–107
Gair Co., Robert, New York, N. Y.
Gardner & Harvey Co., Middletown, O.
La Boiteaux Co., The, Cincinnati, O.
Lawless Bros. Paper Mills, East Rochester, N. Y.
Lowe Paper Co., Ridgefield, N. J.—Insert 184–185
Mac Sim Bar Paper Co., Otsego, Mich.
Marathon Paper Mills, Rothschild, Wis.
McLaurin-Jones Co., Brookfield, Mass.—143
Mead Sales Co., Ltd., New York, N. Y.
National Folding Box Co., New Haven, Conn.
Ohio Boxboard Co., Rittman, O.
Republic Paperboard Co., Cincinnati, O.
Richardson Co., Lockland, O.
Robertson Paper Box Co., Montville, Conn.
Schmidt & Ault Paper Co., York, Pa.
Sutherland Paper Co., Kalamazoo, Mich.
United Paperboard Co., Inc., New York, N. Y.

BOX BOARD PAPER (Set-Up)

Alton Box Board & Paper Co., Alton, Ill.
Butterfield-Barry Co., New York, N. Y.—192
Cherry River Paper Co., Philadelphia, Pa.
Container Corp. of America, Chicago, Ill.—96
Continental Paper Co., Bogota, N. J.
Downington Paper Co., Downington, Pa.
Franklin Board & Paper Co., Franklin, O.
La Boiteaux Co., Cincinnati, O.
Lawless Bros. Paper Mills, East Rochester, N. Y.
McEwan & Sons, R. B., Whippany, N. J.
Mac Sim Bar Paper Co., Otsego, Mich.
Mead Sales Co., Ltd., New York, N. Y.
Republic Paperboard Co., Cincinnati, O.
Richardson Co., The, Lockland, O.
Sutherland Paper Co., Kalamazoo, Mich.
United Paperboard Co., Inc., New York, N. Y.

BOX LACES

American Lace Paper Co., Milwaukee, Wis.
Milwaukee Lace Paper Co., Milwaukee, Wis.
U. S. Lace Paper Works, Brooklyn, N. Y.

BOX TOP PADDING

American Lace Paper Co., Milwaukee, Wis.
Kimberly-Clark Corp., Neenah, Wis.—148–149
Milwaukee Lace Paper Co., Milwaukee, Wis.
Union Wadding Co., Pawtucket, R. I.

BOXES (Corrugated, Solid Fibre)

Agar Manufacturing Corp., Whippany, N. J.
American Can Co., New York, N. Y.—Insert 80–81
American Corrugated Paper Products Corp., New York, N. Y.
American Corrugating Co., Grand Rapids, Mich.
Andrews Co., O. B., Chattanooga, Tenn.
Bicknell & Fuller Paper Box Co., Boston, Mass.—102–103
Bird & Son, Inc., East Walpole, Mass.
Bliss Co., Inc., H. R., Niagara Falls, N. Y.—125–140
Bogota Paper & Board Co., Bogota, N. J.
Brack Container Corp., Rochester, N. Y.
Consolidated Paper Co., Monroe, Mich.—141
Container Corp. of America, Chicago, Ill.—96
Corning Fibre Box Corp., The, Corning, N. Y.
Corrugated Container Co., Philadelphia, Pa.
Corrugated Container Corp., Columbus, O.
Crescent Box Corp., Philadelphia, Pa.
Densen Corrugated Paper Co., Ridgefield Park, N. J.
Eggers-O'Flying Co., Omaha, Neb.
Evans Fibre Box Co., Chicago, Ill.
Federal Container Co., Philadelphia, Pa.
Fort Wayne Corrugated Paper Co., Fort Wayne, Ind.
Gair Co., Robert, New York, N. Y.
Gardner & Harvey Co., The, Middletown, O.
Gaylord Container Company, Atlanta, Ga.
Gaylord, Inc., Robert, St. Louis, Mo.
General Fibre Box Co., Springfield, Mass.
Hercules Paper Box Co., Columbus, O.
Hinde & Dauch Paper Co., The, Sandusky, O.—114
Hummel & Downing Co., Milwaukee, Wis.
Inland Box Corporation, Indianapolis, Ind.
Jackson Box Co., The, Cincinnati, O.
Kieckhefer Container Corp., Milwaukee, Wis.
Kress Box Co., F. J., Pittsburgh, Pa.
Mengel Company, Louisville, Ky.
Menasha Woodenware Co., Menasha, Wis.
Mid-West Box Co., Chicago, Ill.—96
New Orleans Corrugated Box Co., Inc., New Orleans, La.
Nivision-Weiskopf Co., The, Cincinnati, O.
Ohio Boxboard Co., Cleveland, O.
Ottawa River Paper Co., Toledo, O.
Owens-Illinois Glass Co., Toledo, O.
Pa Bro Co., The, Glenfield, N. Y.
Paraffine Companies, The, Inc., San Francisco, Cal.
Richardson Co., The, Lockland, O.
River Raisin Paper Co., Monroe, Mich.
Rochester Folding Box Co., The, Rochester, N. Y.
Rockford Fibre Container Co., Rockford, Ill.
Schmidt Lithograph Co., San Francisco, Cal.
Schultz Co., A. Geo., Milwaukee, Wis.
Star Corrugated Box Co., Maspeth, L. I., N. Y.
Texas Corrugated Box Co., Dallas, Texas.
Wabash Fibre Box Co., Terre Haute, Ind.
Waldorf Paper Products Co., St. Paul, Minn.
Weber & Co., David, Philadelphia, Pa.

BOXES (Folding Display)

Ace Carton Corp., Chicago, Ill.
Atlantic Carton Corp., Norwich, Conn.
Bicknell & Fuller Paper Box Co., Boston, Mass.—102–103
Brooks Bank Note Co., Springfield, Mass.
Brooks & Porter, Inc., New York, N. Y.—97
Brown & Bailey Co., Philadelphia, Pa.
Chicago Carton Co., Chicago, Ill.
Consolidated Paper Co., Monroe, Michigan—141
Container Corp. of America, Chicago, Ill.—96
Continental Folding Paper Box Co., Ridgefield, N. J.
Disbrow Mfg. Co., Inc., The, Newark, N. J.
Fairchild Co., E. E., Rochester, N. Y.—Insert 158–159
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—Insert 106–107
Fort Wayne Paper Goods Co., Fort Wayne, Ind.
Gair Co., Robert, New York, N. Y.
Gardner & Harvey Co., Middletown, O.
Gebhart Folding Box Co., Dayton, O.
Gereke-Allen Carton Co., St. Louis, Mo.
Howell & Co., F. M., Elmira, N. Y.
Hummel & Downing Co., Milwaukee, Wis.
International Folding Paper Box Co., North Bergen, N. J.
International Printing Co., Indianapolis, Ind.
Interstate Folding Box Co., Middletown, O.
Karle Lithographic Co., Rochester, N. Y.
Lord Baltimore Press, Baltimore, Md.
Menasha Products Co., Chicago, Ill.
Morris Paper Mills, Chicago, Ill.
National Carton Co., Joliet, Ill.
National Folding Box Co., New Haven, Conn.
National Metal Edge Box Co., Philadelphia, Pa.
Randolph Box & Label Co., Chicago, Ill.
Reynolds Metals Co., New York, N. Y.—173
Richardson Co., Lockland, O.
Robertson Paper Box Co., Inc., Montville, Conn.
Rochester Folding Box Co., Rochester, N. Y.
Schultz Co., A. Geo., Milwaukee, Wis.
Shoup Co., Inc., A. D., Brooklyn, N. Y.—175–176
Sutherland Paper Co., Kalamazoo, Mich.
Trenton Folding Box Co., Trenton, N. J.
U. S. Printing & Litho. Co., Cincinnati, O.

BOXES (Mailing)

Ace Carton Corp., Chicago, Ill.
Atlantic Carton Corp., Norwich, Conn.
Bicknell & Fuller Paper Box Co., Boston, Mass.—102–103
Brown & Bailey, Philadelphia, Pa.
Chicago Carton Co., Chicago, Ill.
Consolidated Paper Co., Monroe, Mich.—141
Container Corp. of America, Chicago, Ill.—96
Danbury Square Box Co., The, Danbury, Conn.
Disbrow Mfg. Co., Inc., The, Newark, N. J.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—Insert 106–107
Fort Wayne Paper Goods Co., Fort Wayne, Ind.
Gair Co., Robert, New York, N. Y.
Gaylord, Inc., Robert, St. Louis, Mo.
Gebhart Folding Box Co., Dayton, Ohio.
Gereke-Allen Carton Co., St. Louis, Mo.
Hercules Paper Box Co., Columbus, O.
Hinde & Dauch Paper Co., The, Sandusky, O.—114
Illinois Carton & Label Co., Chicago, Ill.
International Printing Co., Indianapolis, Ind.
Interstate Folding Box Co., Middletown, O.
Lord Baltimore Press, Baltimore, Md.
Mason Box Co., The, Attleboro Falls, Mass.—Insert 150–151
Molitor Box Company, Milwaukee, Wis.
Monarch Nusbaum Paper Box Co., Inc., Buffalo, N. Y.
National Folding Box Co., New Haven, Conn.
National Metal Edge Box Co., Philadelphia, Pa.
New England Box Co., The, Greenfield, Mass.—147
Ritchie & Co., W. C., Chicago, Ill.
River Raisin Paper Co., Monroe, Mich.
Robertson Paper Box Co., Inc., Montville, Conn.
Rochester Folding Box Co., Rochester, N. Y.
Schultz Co., A. Geo., Milwaukee, Wis.
Sears Paper Box Co., Merle, Danville, Ill.—190–191
Seeley Tube and Box Co., Newark N. J.—178
Shoup, Inc., A. D., Brooklyn, N. Y.—175–176
Trenton Folding Box Co., Trenton, N. J.
Young Bros., Providence, R. I.—193

BOXES, MOLDED (Plastic)

Aldur Corp., Brooklyn, N. Y.
Allen & Hills, Auburn, N. Y.
American Insulator Co., New Freedom, Pa.
Bakelite Corp., New York, N. Y.
Boonton Molding Co., Boonton, N. J.
Celluloid Corp., New York, N. Y.—Insert 108–109
Colt's Patent Fire Arms Mfg. Co., Hartford, Conn.
General Plastics, Inc., North Tonawanda, N. Y. 120–121

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listing

Kurz-Kasch Co., Dayton, O.—122–123
Mack Molding Company, Wayne, N. J.
Northern Industrial Chemical Co., Boston, Mass.
Norton Laboratories, Inc., Lockport, N. Y.—154–155
Shaw Insulator Co., Irvington, N. J.
Synthetic Plastics, Inc., New York, N. Y.

BOXES (Paper, Set-Up)

Letters indicate general class of boxes manufactured:
A—Covering Machine-made Boxes.
B—Automatic Machine-made Boxes.
C—Hand-made Boxes.
D—Hand-made and Machine-made Boxes.
g.l.—Indicates manufacture of general line of boxes in the class specified, except certain types which are specialties or specialized in, such as Candy, Holiday, Face Powder, Perfumery, Carbon Paper, Jewelry Cases and Shelf Boxes, Hinged Lid and Display, Slide Boxes, Cigarette Boxes, Mailing Boxes and special small boxes. These are indicated by name.

Alderman Paper Box Co., Rochester, N. Y.
A, B, C and D, g.l.
American Paper Box Co., Saginaw, Mich.
A, C and D, g.l.
Atlas Paper Box Co., Chattanooga, Tenn.
A and B, g.l.
Baxter Paper Box Co., The, Brunswick, Me.—85
D, face powder, perfumery, jewelry, pill and drug.
Bicknell & Fuller Paper Box Co., Boston, Mass.—102–103
A, B, C and D, g.l.
Bisler, Inc., G. A., Philadelphia, Pa.
A, B, C and D, candy and holiday.
Bristol Paper Box Co., Bristol, Va.
A, g.l.
Buffington Co., Providence, R. I.
A, g.l.
Burt Co., Ltd., F. N., Buffalo, N. Y.
A, B, C and D, face powder, perfumery, pill and drug, slide boxes, cigarette boxes.
Cambridge Paper Box Co., Cambridge, Mass.—90
A, B, C and D, g.l.
Casselman, Inc., T. and E., New York, N. Y.
A, B, C and D, g.l.
Climax Paper Box Co., Cambridge, Mass.
B, C and D, g.l.
Danbury Square Box Co., The, Danbury, Conn.
A, C and D, g.l.
Dennison Mfg. Co., Framingham, Mass.
D.
Doolittle Co., The E. J., Meriden, Conn.
A, C and D, g.l.
Eagle Paper Box Co., Detroit, Mich.
A, C and D, g.l.
Excelsior Paper Box Factory, St. Louis, Mo.
A, B, C, and D, g.l.
Fairchild Corp., E. E., Rochester, N. Y.—Insert 158–159
A, B, C and D, g.l.
Fisher Paper Box Co., Inc., Minneapolis, Minn.
A, B, C and D, g.l.
Fort Wayne Paper Box Co., Fort Wayne, Ind.
A, B, C and D, g.l.
Grand Rapids Paper Box Co., Grand Rapids, Mich.
A, B, C and D, g.l.
Great Western Paper Box Co., St. Louis, Mo.
A, B, C and D, g.l.
Harrisburg Paper Box Co., Harrisburg, Pa.
A, B, C and D, g.l.
Hatch Co., C. F., Lowell, Mass.
A, B, C and D, g.l.
Henry Co., Ira L., Watertown, Wis.
A, C and D, g.l.
Hollywood Paper Box Corp., Hollywood, Cal.
A, B and D, g.l.
Holman Paper Box Co., St. Louis, Mo.
A, B, C and D, g.l.
Howell & Co., F. M., Elmira, N. Y.
A, B and D, g.l.
Illinois Paper Box Co., Chicago, Ill.
A, C and D, g.l.
Jones Paper Box Co., Jesse, Philadelphia, Pa.
A, B, C and D, g.l.
Kalamazoo Paper Box Co., Kalamazoo, Mich.
A, B, C and D, g.l.
Kentucky Paper Box Co., Inc., Louisville, Ky.
A, B, C and D, g.l.
Keystone Box Co., Pittsburgh, Pa.
A, B, C and D, g.l.
Killian Co., George P., Washington, D. C.
A, B, C and D, g.l.
Kroeck Paper Box Co., Chicago, Ill.
A, g.l.
Lorscheider Schang Co., Rochester, N. Y.
A, B, C and D, g.l.
Mason Box Co., The, Attleboro Falls, Mass.—Insert 150–151
A, B, C and D, g.l.
Molitor Box Co., Milwaukee, Wis.
A, B, C and D, g.l.
Monarch, Nusbaum Paper Box Co., Inc., Buffalo, N. Y.
A, B, C and D, g.l.
Neumann Co., The Robert, Cincinnati, O.
A, C and D, g.l.
Norristown Box Co., Norristown, Pa.
A and B, g.l.
Ohio Boxboard Co., Cleveland, O.
A, B, C and D, g.l.
Paper Package Co., Indianapolis, Ind.
A, B, C and D, g.l.
Pearson Paper Box Co., Kansas City, Mo.
A, C and D, g.l.
Pharmacy Paper Box Co., Chicago, Ill.
A, B and C.
Pictorial Paper Package Co., Aurora, Ill.
A, B, C and D, g.l.
Randolph Paper Box Co., Richmond, Va.
A, B and D, g.l.
Reynolds Metals Co., New York, N. Y.—173
A, B, g.l.
Ritchie & Co., W. C., Chicago, Ill.
A, B, C and D, g.l., candy, holiday, face powder, perfumery, jewelry, pill and drug, slide boxes, cigarette boxes, mailing boxes, hinged lid and display, special small boxes, mailing tubes, paper cans with paper or metal ends, liquid tight round containers.
Rowell Co., Inc., E. N., Batavia, N. Y.
A, B and D, g.l.
Schleicher Paper Box Co., F. J., St. Louis, Mo.
B, C and D, candy.
Schoettle Co., Edwin J., Philadelphia, Pa.
A, B, C and D, g.l.
Schultz and Co., H., Chicago, Ill.
A, B, C and D, g.l.
Schultz Co., A. Geo., Milwaukee, Wis.
A, B, C and D, g.l.
Sears Paper Box Co., Merle, Danville, Ill.—190–191
A, B, C and D, g.l.
Seeley Tube and Box Co., Newark, N. J.—178
A, B and D, g.l.
Shoup Co., Inc., A. D., Brooklyn, N. Y.—175–176
B, candy, display, chewing gum, hosiery, misc.
Spitzer Paper Box Co., Toledo, O.
A, B, C and D, g.l.
Stecker Paper Box Co., Detroit, Mich.
A, B, C and D, g.l.
Trum, Inc., E. J., Brooklyn, N. Y.
A and D, g.l.
Voss Corp., Karl, Hoboken, N. J.—185–186
Face powder, perfumery.
Waldeck & Co., Jersey City, N. J.
A, B, C and D, g.l.
Young Bros., Providence, R. I.—193
A, B, C and D, g.l.

BOX MAKING MACHINES

Consolidated Packaging Machinery Corp., Buffalo, N. Y.—94
Grammes & Sons, L. F., Allentown, Pa.
Inman Mfg. Co., Inc., Amsterdam, N. Y.
International Paper Box Machine Co., Nashua, N. H.
Knowlton Co., M. D., Rochester, N. Y.
N. J. Machine Corp., Hoboken, N. J.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Robinson Co., John T., Hyde Park, Mass.
Staude Mfg. Co., E. G., St. Paul, Minn.
Stokes & Smith Co., Philadelphia, Pa.—168–169
Thomson National Press Co., Franklin, Mass.

BOX (Wood) MAILING MACHINES

Doig, Inc., Wm. S., Brooklyn, N. Y.
Grammes & Sons, Inc., L. F., Allentown, Pa.
Morgan Machine Co., Inc., Rochester, N. Y.

BOX PRINTING MACHINES

Hooper Co., F. X., Glenarm, Md.
Knowlton Co., M. D., Rochester, N. Y.
Langston Co., Samuel M., Camden, N. J.
Morgan Machine Co., Inc., Rochester, N. Y.
New Jersey Machine Corp., Hoboken, N. J.
Thomson National Press Co., Franklin, Mass.

BOX REINFORCEMENT (Strapping-Wire)

Acme Steel Co., Chicago, Ill.—80
American Steel & Wire Co., Chicago, Ill.
Gerrard Co., Inc., Chicago, Ill.
Parker Machine Works, Riverside, Cal.
Seneca Wire & Mfg. Co., Fostoria, O.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.—179
Tennant Sons & Co., C., New York, N. Y.

BOX SEALING MACHINES (Wire)

Bliss Co., Inc., H. R., Niagara Falls, N. Y.—125–140
Ideal Stitcher & Mfg. Co., Racine, Wis.—Insert 176-177
Latham Machinery Co., Chicago, Ill.
Morrison Co., J. L., Niagara Falls, N. Y.
New Jersey Wire Stitching Co., Camden, N. J.
Saranac Machine Company, Benton Harbor, Mich.—171

BOX SHOOKS (Wooden Boxes)

Acme Box Co., Chicago, Ill.
Anderson Tully Co., Memphis, Tenn.
Chicago Mill & Lumber Co., Chicago, Ill.
Dodge & Bliss Co., Jersey City, N. J.
Dunning Corp., J. H., New York, N. Y.
General Box Co., Chicago, Ill.
National Box Co., Chicago, Ill.
New England Box Co., The, Greenfield, Mass.—147
Owens-Illinois Glass Co., Toledo, O.
Queen City Box Co., Cincinnati, O.
Rathbone, Hair & Ridgway Co., Chicago, Ill.
Richards Shook Corp., New York, N. Y.
Star Box & Lumber Co., New York, N. Y.
St. Croix Box Mfg. Co., Bayport, Minn.
St. Croix Lumber Co., Boston, Mass.
United Box Mfg. Co., Kansas City, Mo.
Weyerhaeuser Sales Co., Chicago, Ill.
Wolverine Box Co., Detroit, Mich.
Zenith Box & Lumber Co., Duluth, Minn.

BOX SHOOKS, VENEER AND PLYWOOD

Atlas Plywood Corp., Boston, Mass.
Chicago Mill & Lumber Co., Chicago, Ill.
General Box Co., Chicago, Ill.
National Box Co., Chicago, Ill.
New England Box Co., The, Greenfield, Mass.—147
Northwestern Cooperage & Lumber Co., Gladstone, Mich.
Owens-Illinois Glass Co., Toledo, O.
Rathbone, Hair & Ridgway Co., Chicago, Ill.
Tifft Bros., New York, N. Y.

BOX TAPING MACHINES (Gummed)

Better Packages, Inc., Shelton, Conn.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Metal Specialties Co., Chicago, Ill.
Nashua Package Sealing Co., Nashua, N. H.
Paper Utilities Corp., Chicago, Ill.
Peters Machinery Co., Chicago, Ill.—158
Potdevin Machine Co., Brooklyn, N. Y.

BOX WRAPS (Lithographed, Printed and Embossed)

American Lithograph Co., New York, N. Y.
Artographic Paper Products Co., Winona, Minn.
Auto Printing Co., New York, N. Y.
Bendix Paper Co., New York, N. Y.
Brooks Bank Note Co., Springfield, Mass.
Central Lithograph Co., Cleveland, O.
Chicago Label & Box Co., Chicago, Ill.
Davenport-Taylor Mfg. Co., Chicago, Ill.—107
Edwards & Deutsch Litho. Co., Chicago, Ill.
Fairchild Corp., E. E., Rochester, N. Y.—Insert 158–159
Forsman Co., C. H., New York, N. Y.
Foxon Co., The, Providence, R. I.—113
Frohn, John C., Boston, Mass.
Gamse & Co., H., Baltimore, Md.
Gugler Lithograph Co., Milwaukee, Wis.
Heywood Co., Inc., R. R., New York, N. Y.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Kaumagraph Co., New York, N. Y.—117
Kaupp & Son, J. M., Philadelphia, Pa.
Kehlman Co., L., New York, N. Y.
Kirby-Cogeshall Co., Milwaukee, Wis.
Kittredge Co., R. J., Chicago, Ill.
Krause, Richard M., New York, N. Y.
Liebs Co., L. A., New York, N. Y.
Little Co., John W., Pawtucket, R. I.
Oberly & Newell Corp., New York, N. Y.
Package Paper Co., Holyoke, Mass.
Rochester Lithographing Co., Rochester, N. Y.
Rowell Co., Inc., E. N., Batavia, N. Y.

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listing

Schmidt Litho. Co., Theo. A., Chicago, Ill.
Simpson & Doeller Co., Baltimore, Md.
Trautmann, Bailey & Blampey, New York, N. Y.—Insert 178–179
Unique Printed Products Co., Terre Haute, Ind.
United States Printing & Lithograph Co., Cincinnati, O.
Woodward & Tiernan, St. Louis, Mo.

BUNDLE TYING MACHINES

Acme Steel Co., Chicago, Ill.—80
Bunn Co., B. H., Chicago, Ill.
Gerrard Co., Inc., Chicago, Ill.
National Bundle Tyer Co., Blissfield, Mich.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.—179

CADDIES
(Moisture-proof and Greaseproof Cracker)

Bliss Co., Inc., H. R., Niagara Falls, N. Y.—125–140
Chicago Carton Co., Chicago, Ill.
Consolidated Paper Co., Monroe, Mich.—141
Gair Co., Robert, New York, N. Y.
Gaylord Co., Robert, St. Louis, Mo.
Hinde & Dauch Paper Co., Sandusky, Ohio—114
Hummel & Downing Co., Milwaukee, Wis.
International Printing Co., Indianapolis, Ind.
River Raisin Paper Co., Monroe, Mich.
Rochester Folding Box Co., Rochester, N. Y.
Sefton National Fibre Can Co., St. Louis, Mo.

CAN CAPPING MACHINES

Aluminum Co. of America, Pittsburgh, Pa.
American Can Co., New York, N. Y.—Insert 80–81
Anchor Cap & Closure Corp, Long Island City, N. Y.
Anderson Inc., E. D., New York, N. Y.—144–145
Consolidated Packaging Mchny. Co., Buffalo, N. Y.—94
Continental Can Co., New York, N. Y.—Insert 94-95
Elgin Mfg. Co., Elgin, Ill.
Ferguson Co., J. L., Joliet, Ill.—Insert 158–159
Kiefer Machine Co., The Karl, Cincinnati, O.
Phoenix-Hermetic Co., Chicago, Ill.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Small Mfg. Co., C. T., St. Louis, Mo.
U. S. Bottlers' Machinery Co., Chicago, Ill.
Williams Sealing Corp., Decatur, Ill.

CANS (Fibre)

American Can Co., New York, N. Y.—Insert 80–81
Cambridge Paper Box Co., Cambridge, Mass.—90
Canister Co., The, Phillipsburg, Pa.
Cleveland Container Co., Cleveland, O.
Lily-Tulip Cup Corp., New York, N. Y.
Marathon Paper Mills Co., Rothschild, Wis.
Menasha Products Co., Chicago, Ill.
Molitor Box Co., Milwaukee, Wis.
Mono Service Co., Newark, N. J.
National Paper Can Co., Milwaukee, Wis.
Paper Canister Co., Philadelphia, Pa.
R. C. Can Co., St. Louis, Mo.—164
Reynolds Metals Co., Louisville, Ky.—173
Ritchie & Co., W. C., Chicago, Ill.
Rowell & Co., Inc., E. N., Batavia, N. Y.
Sealright Co., Fulton, N. Y.
Seeley Tube and Box Co., Newark, N. J.—178
Sefton National Fibre Can Co., St. Louis, Mo.
Smith-Lewis Fibre Can Corp., Lowville, N. Y.

CANS (Tin, Plain and Decorated)

Acme Can Co., Philadelphia, Pa.
American Can Co., New York, N. Y.—Insert 80–81
Burdick & Son, Albany, N. Y.—104
Clark Mfg. Co., J. L., Rockford, Ill.
Columbia Can Co., St. Louis, Mo.
Continental Can Co., New York, N. Y.—Insert 94–95
Giles Can Co., Chicago, Ill.
Heekin Can Co., Cincinnati, O.
Metal Package Corp., New York, N. Y.—146
Phoenix-Hermetic Co., Chicago, Ill.
Robertson Steel & Iron Co., W. F., Springfield, O.
Tin Decorating Co., Baltimore, Md.
Wilkes-Barre Can Co., Wilkes-Barre, Pa.

CAPS (Paper)

Sayford Paper Specialty Co., Vineland, N. J.

CAPS (Bottle and Jar, Metal)

Aluminum Co. of America, Pittsburgh, Pa.
Anchor Cap & Closure Corp, Long Island City, N. Y.
Aridor Co., Chicago, Ill.
Bridgeport Metal Goods Co., Bridgeport, Conn.
Closure Service Co., Toledo, O.
Crown Cork & Seal Co., Inc., Baltimore, Md.
Empire Metal Cap Co., Brooklyn, N. Y.
Gutman & Co., Ferdinand, Brooklyn, N. Y.
Hazel-Atlas Glass Co., Wheeling, W. Va.
National Seal Co., Brooklyn, N. Y.
Owens-Illinois Glass Co., Toledo, O.
Phoenix-Hermetic Co., Chicago, Ill.
Scovill Manufacturing Co., Waterbury, Conn.
Sterling, A. J., New York, N. Y.
Vacuum Seal Co., Brooklyn, N. Y.
Williams Sealing Corp., Decatur, Ill.

CAPS (Bottle, Jar & Tube) MOLDED

Aldur Corp., Brooklyn, N. Y.
Allen & Hills, Auburn, N. Y.
American Insulator Co., New Freedom, Pa.
Anchor Cap & Closure Co., Long Island City, N. Y.
Armstrong Cork Co., Lancaster, Pa.
Bakelite Corp., New York, N. Y.
Boonton Molding Co., Boonton, N. J.
Celluloid Corp., New York, N. Y.—Insert 108–109
Colt's Patent Fire Arms Mfg Co., Hartford, Conn.
General Plastics, Inc., N. Tonawanda, N. Y.—120–121
Kurz-Kasch Co., The, Dayton, Ohio—122–123
Mack Molding Co., Little Falls, N. J.
Northern Industrial Chemical Co., Boston, Mass.
Norton Laboratories, Inc., Lockport, N. Y.—154–155
Synthetic Plastics, Inc., New York, N. Y.
Waterbury Button Co., Waterbury, Conn.

CAPS (Viscose)

Celon Co., Madison, Wis.
DuPont de Nemours & Co., Inc., E. I., Wilmington, Del.
Parke-Davis Co., Detroit, Mich.

CARTON LINERS

Betner Co., Ben C., Devon, Pa.
Central Waxed Paper Co., Chicago, Ill.
Deerfield Glassine Co., Monroe Bridge, Mass. Insert 172–173
Disbrow Mfg. Co., Inc., The, Newark, N. J.
Hamersley Mfg. Co., Garfield, N. J.
Hartford City Paper Co., Hartford City, Ind.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—116
Marathon Paper Mills, Rothschild, Wis.
McDowell Paper Mills, Philadelphia, Pa.
Menasha Products Co., Chicago, Ill.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
National Carton Co., Joliet, Ill.
Newark Paraffine & Parchment Paper Co., Newark, N. J.—150
Package Paper Co., Holyoke, Mass.
Paterson Parchment Paper Co., Passaic, N. J.
Reynolds Metals Co., New York, N. Y.—173
Rhinelander Paper Co., Rhinelander, Wis.
Riegel Paper Corp., New York, N. Y.—170
Specialty Paper Co., The, Dayton, O.
Sutherland Paper Co., Kalamazoo, Mich.
West Carrollton Parchment Co., West Carrollton, O.
Westfield River Paper Co., Russell, Mass.—188

CARTON MAKING MACHINES

Anderson, Inc., E. D., New York, N. Y.—144–145.
Automatic Packaging Machinery Co., Nashua, N. H.
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Cartoning Machinery Corp., Newport, R. I.,—92
Consolidated Packaging Machinery Co., Buffalo, N. Y.—94
Ferguson Co., J. L., Joliet, Ill.—109–112
Inman Manufacturing Co., Amsterdam, N. Y.
International Paper Box Machine Co., Nashua, N. H.
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich—87
Jones, Inc., R. A., Covington, Ky.
Knowlton Co., M. D., Rochester, N. Y.
New Jersey Machine Corp., Hoboken, N. J.
Peters Machinery Co., Chicago, Ill.—158
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Redington Co., F. B., Chicago, Ill.
Saranac Machine Co., Benton Harbor, Mich.—171
Self-Locking Machinery Co., Chicago, Ill.
Staude Manufacturing Co., E. G., St. Paul, Minn.
Stokes & Smith Co., Philadelphia, Pa.—168–169

CARTONS (Paraffined)

Atlantic Carton Corp., Norwich, Conn.
Bloomer Bros. Co., Newark, N. J.
Butler Paper Products Co., Toledo, O.
Chicago Carton Co., Chicago, Ill.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—Insert 158–159
Gair Co., Robert, New York, N. Y.
Gereke-Allen Co., St. Louis, Mo.
Hummel & Downing Co., Milwaukee, Wis.
Menasha Products Co., Chicago, Ill.
Michigan Carton Co., Battle Creek, Mich.
Morris Paper Mills, Chicago, Ill.
National Carton Co., Joliet, Ill.
Sutherland Paper Co., Kalamazoo, Mich.

CARTONS
(See Boxes, Folding Paper)

CARTONS (Metal-Surfaced, Metal-Lined)

Reynolds Metals Co., New York, N. Y.—173

CASE LINERS

Angier Corp., Framingham, Mass.
Brown Co., Portland, Me.
Disbrow Mfg. Co., Inc., The, Newark, N. J.
Edgewater Paper Co., Menasha, Wis.
Package Paper Co., Holyoke, Mass.—127
Rexford Paper Co., Milwaukee, Wis.
Reynolds Metals Co., New York, N. Y.—173

CASES, MAILING
(See Boxes, Mailing)

CASTERS, TRUCK

Bassick Co., Bridgeport, Conn.
Bond Foundry & Mach. Co., Manheim, Pa.
Divine Bros., Utica, N. Y.
Fairbanks Co., New York, N. Y.
Faultless Caster Co., Evansville, Ind.
Lansing Co., Lansing, Mich.
Metzgar Co., Grand Rapids, Mich.
Nutting Truck Co., Faribault, Minn.
Sargent & Co., New Haven, Conn.
Service Caster & Truck Co., Albion, Mich.
Warren Mfg. Co., Springfield, Mass.
Zering Mfg. Co., The H., Cincinnati, O.

CELLULOSE (Transparent), Printed and Plain

Catty Co., H. D., New York, N. Y.
Du Pont Cellophane Co., Inc., New York, N. Y.
Milwaukee Printing Co., Milwaukee, Wis.
Package Paper Co., Holyoke, Mass.
Shellmar Products Co., Chicago, Ill.
Sylvania Industrial Corp., New York, N. Y.—Insert 164–165
Transparent Packaging & Printing Co., New York, N. Y.

CELLULOID

Celluloid Corp., New York, N. Y.—Insert 108–109

CHIPBOARD

Butterfield-Barry Co., New York, N. Y.—192
Consolidated Paper Co., Monroe, Mich.—141
Container Corp. of America, Chicago, Ill.—96
Federal Paper Board Co., Inc., Bogota, N. J.
Gair Co., Robert, New York, N. Y.
Kieckhefer Container Corp., Milwaukee, Wis.
La Boiteaux Co., Cincinnati, O.
Mead Sales Co., Ltd., New York, N. Y.
Richardson Co., Lockland, O.
Riegel Paper Corp., New York, N. Y.—170
River Raisin Paper Co., Monroe, Mich.
Schmidt & Ault Paper Co., York, Pa.
United Paperboard Co., New York, N. Y.

CLOTH (Lacquered)

Carpenter Co., L. E., Newark, N. J.—91
Du Pont Fabrikoid Co., Newburgh, N. Y.
Keratol Co., Newark, N. J.—100–101
Permatex Fabrics, Inc., Jewett City, Conn.
Whiting Co., Inc., C. R., Newark, N. J.—182

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listing

CONTAINERS (Metal, Fancy)

Bridgeport Metal Goods Co., Bridgeport, Conn.
Goertz & Co., Inc., August, Newark, N. J.
Sagamor Metal Goods Corp., New York, N. Y.
Scovill Manufacturing Co., Waterbury, Conn.

CONTAINERS (Molded, Fancy)

Aldur Corp., Brooklyn, N. Y.
Allen & Hills, Auburn, N. Y.
American Insulator Co., New Freedom, Pa.
Bakelite Corp., New York, N. Y.
Boonton Molding Co., Boonton, N. J.
Celluloid Corp., New York, N. Y.—Insert 108–109
Colt's Patent Fire Arms Mfg. Co., Hartford, Conn.
General Plastics, Inc., North Tonawanda, N. Y.—120–121
Kurz-Kasch Company, The, Dayton, O.—122–123
Mack Molding Co., Little Falls, N. J.
Norton Laboratories, Inc., Lockport, N. Y.—154–155
Northern Industrial Chemical Co., Boston, Mass.
Synthetic Plastics, Inc., New York, N. Y.

CONVEYORS

Acme Steel Co., Chicago, Ill.—80
Alvey-Ferguson Co., Cincinnati, O.
Cambridge Wire Cloth Co., The, Cambridge, Md.
Chain Belt Co., Milwaukee, Wis.
Colton Co., Arthur, Detroit, Mich.—93
Dodge Mfg. Co., Mishawaka, Ind.
Gifford-Wood Co., Hudson, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Kiefer Machine Co., The Karl, Cincinnati, O.
Lamson Co., Syracuse, N. Y.
Link-Belt Co., Chicago, Ill.
Logan Co., Louisville, Ky.
Mathews Conveyor Co., Ellwood City, Pa.
Sandvik Conveyor Mfg. Co., Inc., Newark, N. J.
Standard Conveyor Co., N. St. Paul, Minn.
Stokes Machine Co., F. J., Philadelphia, Pa.—174
U. S. Bottlers' Machinery Co., Chicago, Ill.
Webster Mfg. Co., Chicago, Ill.

CORKS

American Cork Co., Boston, Mass.
Armstrong Cork Co., Lancaster, Pa.
International Cork Co., Brooklyn, N. Y.
Owens-Illinois Glass Co., Toledo, O.

COUNTER DISPLAY

See Display Containers, Lithographers and Boxes (Folding)

COUNTING MACHINES

Durant Mfg. Co., Milwaukee, Wis.
Egry Register Co., Dayton, O.
Redington Co., F. B., Chicago, Ill.
Veeder-Root Co., Hartford, Conn.

CRANES, PORTABLE

Crescent Truck Co., Lebanon, Pa.
Elwell-Parker Electric Co., The, Cleveland, O.
Mechanical Handling Systems, Inc., Detroit, Mich.
Shephard Electric Crane & Hoist Co., Montour Falls, N. Y.

CREPE WADDING

International Paper Co., New York, N. Y.
Kimberly-Clark Corp., Chicago, Ill.—148–149

DRUMS, FIBRE

Arvey Mfg. Co., Chicago, Ill.
Buffalo Carpenter Container Co., Inc., Buffalo, N. Y.
Carpenter Container Corp., Brooklyn, N. Y.
Champion Container Co., Philadelphia, Pa.
Container Co., The, Van Wert, O.
Emery Carpenter Container Co., Chicago, Ill.
Master Package Corp., Owen, Wis.
Philadelphia Carpenter Container Co., Inc., Philadelphia, Pa.
Richardson Co., The, Lockland, O.

EMBOSSING MACHINES

American Embossing Foil Co., Providence, R. I.
Griffin & Sons, Co. H., New York, N. Y.
Peerless Roll Leaf Co., New York, N. Y.—159
Perkins Co., B. F., Holyoke, Mass.
Thomson National Press Co., Franklin, Mass.
U. S. Krause Corp., New York, N. Y.
Waldron Corp., John, New Brunswick, N. J.

ENVELOPES (Glassine, Cellophane, Waxed)

See Bags

ENVELOPE LININGS

See Papers, Fancy Tissue Wrapping

EXCELSIOR, PADS

Boston Excelsior Co., New York, N. Y.
Excelsior Wrapper Co., Chicago, Ill.
Quincy North Star Co., Quincy, Ill.
Selle & Co., H. W., Chicago, Ill.

FOIL (Tin, Lead and Composition)

Aluminum Co. of America, Pittsburgh, Pa.
Hurst Co., Adolphe, New York, N. Y.
Pauli Corp., Karl, New York, N. Y.
Reynolds Metals Co., New York, N. Y.—173
Schulman Co., Louis, New York, N. Y.
Whiting-Patterson Co., Inc., New York, N. Y.—187

FOLDING BOXES

See Boxes (Folding Carton)

GAUGES, PAPER

Cady Co., E. J., Chicago, Ill.
Federal Products Corp., Providence, R. I.
Foreign Paper Mills, Inc., New York, N. Y.
Perkins & Son, Inc., B. F., Holyoke, Mass.

GIFT WRAPPINGS

See Paper, Fancy Tissue Wrapping

GLUES AND PASTES

See Adhesives

GLUE HEATERS AND GLUE POTS

Beckwith Machine Co., Ravenna, O.
Gane Bros. & Lane, Inc., Chicago, Ill.
New Advance Machinery Co., Van Wert, O.
Potdevin Machine Co., Brooklyn, N. Y.

GLUING MACHINES FOR LABELS, Etc.

Burt Machine Co., Baltimore, Md.—89
Economic Machinery Co., Worcester, Mass.—106
Ferguson Co., J. L., Joliet, Ill.—109–112
Grammes & Sons, Inc., L. F., Allentown, Pa.
Knowlton Co., M. D., Rochester, N. Y.
McDonald Engineering Corp., Brooklyn, N. Y. 152–153
New Jersey Machine Corp., Hoboken, N. J.
O. & J. Machine Co., Worcester, Mass.—118
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Potdevin Machinery Co., Brooklyn, N. Y.
Stokes & Smith Co., Philadelphia, Pa.—168–169

GUMMED TAPE (Plain, Printed, Colored)

Badger State Paper Co., Milwaukee, Wis.
Bird & Sons, E., Walpole, Mass.
Better Packages, Shelton, Conn.
Central Paper Co., Menasha, Wis.
Chicago Gummed Tape Co., Chicago, Ill.
Crowell Corp., The, Yorklyn, Del.
Datz & Co., A. S., Philadelphia, Pa.
Edgewater Paper Co., Menasha, Wis.
Gane Bros. & Lane, Inc., Chicago, Ill.
Gummed Paper Products Co., Troy, O.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Hudson Bag Co., Brooklyn, N. Y.
Lambooy Label & Wrapper Co., Kalamazoo, Mich.
Matthias & Freeman Paper Co., Philadelphia, Pa.
McLaurin-Jones Co., Brookfield, Mass.—143
Metal Specialties Co., Chicago, Ill.
Mid-States Gummed Paper Co., Chicago, Ill.
Moore & Thompson Paper Co., Bellows Falls, Vt.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
Paper Service Co., The, Lockland, O.
Queen City Paper Co., Cincinnati, O.
Rexford Paper Co., Milwaukee, Wis.
Schulman Co., Louis, New York, N. Y.
Standard Paper Co., Bellows Falls, Vt.
Tanglefoot Co., Grand Rapids, Mich.
Unique Printed Products Co., Terre Haute, Ind.

GUMS

See Adhesives

HOISTS (Chain)

Box & Co., Inc., Alfred, Philadelphia, Pa.
Chisholm-Moore Mfg. Co., Cleveland, O.
Ford Chain Block Co., Philadelphia, Pa.
Green Co., Inc., G. S., New York, N. Y.
Harrington Co., Philadelphia, Pa.
Morris, Inc., Herbert, Buffalo, N. Y.
Roeper Crane & Hoist Works, Inc., Reading, Pa.
Seattle Chain & Mfg. Co., Seattle, Wash.
Wright Mfg. Co., Lisbon, O.
Yale & Towne Mfg. Co., Stamford, Conn.

INKS, MARKING

Binney & Smith, New York, N. Y.
Bradley Stencil Machine Co., St. Louis, Mo.
Diagraph Stencil Machine Corp., St. Louis, Mo.
Garvey Fountain Brush & Ink Co., St. Louis, Mo.
Marsh Stencil Machine Co., Belleville, Ill.

INKS (Metallic)

International Printing Ink Corp., New York, N. Y.
Sleight Metallic Ink Co., Inc., New York, N. Y.
Triangle Ink & Color Co., Inc., Brooklyn, N. Y.
Ullman Co., Sigmund, New York, N. Y.

INKS (Oil)

Huber, Inc., J. M., New York, N. Y.
International Printing Ink Corp., New York, N. Y.
Johnson, Inc., C. Eneu, Philadelphia, Pa.
Ruxton, Inc., Philip, New York, N. Y
Sinclair & Carroll Co, Inc., New York, N. Y.
Sinclair & Valentine, New York, N. Y.
Triangle Ink & Color Co., Inc., Brooklyn, N. Y.
Ullman Co., Sigmund, New York, N. Y.

INKS (Water Color)

Braden Sutphin Ink Co., The, Cleveland, O.

INSERTS, PACKAGE

Art Gravure Co., New York, N. Y.—Insert 84–85

(See Lithographers)

IRONS, BRANDING

Everhot Mfg. Co., Maywood, Ill.

JARS, GLASS

See Bottles, Glass

JARS, OPAL

Hazel-Atlas Glass Co., Wheeling, W. Va.
Owens-Illinois Glass Co., Toledo, O.
Ruth Glass Co., New York, N. Y.
Wheaton, T. C., Milville, N. J.
Whitall Tatum Co., New York, N. Y.

JARS (Plain & Fancy, Molded)

See Containers (Molded)

KRAFT PAPER (Plain, Colored, Printed)

Bogalusa Paper Co., Bogalusa, La.
Brown Co., Portland, Me.
Datz & Son, A. S., Philadelphia, Pa.
International Paper Co., New York, N. Y.
Mosinee Mills, Chicago, Ill.
Schulman Co., Louis, New York, N. Y.
Tomahawk Paper Co., Chicago, Ill.

LABELS, STICKERS (Gummed—Ungummed)

Bartlett Label Co., Kalamazoo, Mich.
Davenport-Taylor Co., Chicago, Ill.—107
Edgewater Paper Co., Menasha, Wis.
Eveready Label Co., New York, N. Y.
Fenton Label Co., Philadelphia, Pa.
Foxon Co., The, Providence, R. I.—113
Gamse & Bros., Inc., H., Baltimore, Md.
Horn, John, New York, N. Y.
Howell & Co., F. M., Elmira, N. Y.
Kalamazoo Label Co., Kalamazoo, Mich.
Kaumagraph Co., New York, N. Y.—117
Kirby-Cogeshall Co., Milwaukee, Wis.
Krause, R. M., Co., New York, N. Y.
Lambooy Label & Wrapper Co., Kalamazoo, Mich.
Little Co., John W., Pawtucket, R. I.
Manz Corp., Chicago, Ill.
May Co., J. L., New York, N. Y.
McLaurin-Jones Co., Brookfield, Mass.—143
Metal Specialties Mfg. Co., Chicago, Ill.
Milwaukee Label & Seal Co., Milwaukee, Wis.
Muirson Label & Carton Co., Brooklyn, N. Y.
Nashua Gummed & Coated Paper Co.
Rexford Paper Co., Milwaukee, Wis.
St. Louis Sticker Co., St. Louis, Mo.
Salisbury Mfg. Co., Providence, R. I.
Shuman Co., Frank G., The, Chicago, Ill.—Insert 186-187

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listing

Stanley Mfg. Co. Dayton, O.
Tablet & Ticket Co., The, Chicago, Ill.—181
Unique Printed Products Co., Inc., Terre Haute, Ind.

LABELS (Embossed)

Bartlett Label Co., Kalamazoo, Mich.
Consolidated Lithographing Co., Brooklyn, N. Y.
Davenport-Taylor Co., Chicago, Ill.—107
Dennison Mfg. Co., Framingham, Mass.
Foxon Co., The, Providence, R. I.—113
Horn, John, New York, N. Y.
Howell & Co., F. M., Elmira, N. Y.
Illinois Carton & Label Co., Chicago, Ill.
Kaumagraph Co., New York, N. Y.—117
Kehlmann Co., L., New York, N. Y.
Kirby-Cogeshall Co., Milwaukee, Wis.
Krause, Richard M., New York, N. Y.
Lambooy Label & Wrapper Co., Kalamazoo, Mich.
Manz Corp., Chicago, Ill.
Muirson Label & Carton Co., Brooklyn, N. Y.
Reynolds Metals Co., Inc., New York, N. Y.—173
Shuman Co., Frank G., Chicago, Ill.—Insert 186–187
Stanley Mfg. Co., The, Dayton, O.
Tablet & Ticket Co., The, Chicago, Ill.—181
Unique Printed Products Co., Inc., Terre Haute, Ind.

LABELS (Lithographed)

See Lithographers

LACE PAPER

American Lace Paper Co., Milwaukee, Wis.
Marathon Paper Mills Co., Rothschild, Wis.
Milwaukee Lace Paper Co., Milwaukee, Wis.
U. S. Lace Paper Works, Brooklyn, N. Y.

LEATHER (Imitation)

Carpenter & Co., Inc., L. E., Newark, N. J.—91
Dupont Fabrikoid Co., Newburgh, N. Y.
Griffin & Sons Co., H., New York.
Keratol Co., The, Newark, N. J.—100–101
Premoid Co., Springfield, Mass.
Whiting Co., Inc., C. R., Newark, N. J.—182

LINERS (Bag, Barrel and Box)

Angier Corp., Framingham, Mass.
Arkell Safety Bag Co., New York, N. Y.
Bemis Bros. Bag Co., St. Louis, Mo.
Coated Paper Products Co., Minerva, O.
Container Corp. of America, Chicago, Ill.—96
Disbrow Mfg. Co., Inc., The, Newark, N. J.
Edgewater Paper Co., Menaha, Wis.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—Insert 106–107
Paper Service Co., The, Lockland, O.
Rexford Paper Co., Milwaukee, Wis.
Reynolds Metals Co., Inc., New York, N. Y.—173
River Raisin Paper Co., Monroe, Mich.
Safepack Mills, Millis, Mass.

LINERS (Cap, General)

Anchor Cap & Closure Co., Long Island City, N. Y.
Armstrong Cork Co., Lancaster, Pa.
Bond Mfg. Co., Wilmington, Del.
General Felt Products, Inc., Brooklyn, N. Y.
Irvington Varnish & Insulator Co., Irvington, N. J.
Phoenix-Hermetic Co., Chicago, Ill.
Standard Insulation Co., East Rutherford, N. J.

LINERS (Waxed)

See Waxed Paper

LITHOGRAPHERS (Paper and Metal)

Acme Metal Decorating Co., Brooklyn, N. Y.
American Can Co., New York, N. Y.—Insert 80–81
American Colortype Co., New York, N. Y.
Atlantic Litho. & Ptg. Co., New York, N. Y.
Brett Litho. Co., Long Island City, N. Y.
Brooks Bank Note Co., Springfield, Mass.
Brown & Bigelow, Inc., St. Paul, Minn.
Carlisle & Co., A., San Francisco, Cal.
Central Lithograph Co., The, Cleveland, O.
Continental Can Co., New York, N. Y.—Insert 94–95
Donaldson Litho. Co., Newport, Ky.
Edwards & Deutsche Litho. Co., Chicago, Ill.
Erie Litho. & Printing Co., Erie, Pa.
Fairchild Corp., E. E., Rochester, N. Y.—Insert 158–159
Federal Litho. Co., Detroit, Mich.
Forbes Litho. Mfg. Co., Boston, Mass.
Genesee Valley Litho. Co., Rochester, N. Y.
Gerlach-Barklow Co., Joliet, Ill.
Goes Litho. Co., Chicago, Ill.
Gugler Lithograph Co., Milwaukee, Wis.
Henderson Litho. Co., Cincinnati, O.
Heywood Co., Inc., R. R., New York, N. Y.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Karle Litho. Co., Rochester, N. Y.
Kaumagraph Co., New York, N. Y.—117
Magill-Weinsheimer Co., Chicago, Ill.
McCandlish Lithograph Corp., Philadelphia, Pa.
McKey Humphreys Lithographic Co., Boston, Mass.
Metal Lithograph Co., Brooklyn, N. Y.
Metal Package Corp., New York, N. Y.—146
Meyercord Co., Chicago, Ill.
Munro & Harford Co., New York City.
National Prtg. & Engr. Co., Chicago, Ill.
Northwestern Litho. Co., Milwaukee, Wis.
Oberly & Newell, New York, N. Y.
Powers Co., W. F., New York, N. Y.
Premier Litho. Co., Chicago, Ill.
Regensteiner Corp., Chicago, Ill.
Rochester Folding Box Co., Rochester, N. Y.
Rochester Lithographing Co., Rochester, N. Y.
Rode & Brand, Inc., New York, N. Y.
Sale Litho. Co., Buffalo, N. Y.
Schmidt Litho. Co., Theo. A., Chicago, Ill.
Schmidt Litho. Co., San Francisco, Cal.
Schulz Litho. Co., A. C., Milwaukee, Wis.
Snyder & Black, Inc., New York, N. Y.
Standard Ptg. Co., Louisville, Ky.
Stecher Litho. Co., Rochester, N. Y.
Strobridge Litho. Co., Cincinnati, O.
Stubbs Co., The, Detroit, Mich.
Tin Decorating Co., Baltimore, Md.
Traung Label & Litho. Co., San Francisco, Cal.
Trautmann, Bailey & Blampey, New York, N. Y.—Insert 178–179
U. S. Ptg. & Litho. Co., Cincinnati, O.
Walker Litho. & Pub. Co., Boston, Mass.

MACHINES (Automatic Weighing, Dry Filling)

American Machine & Foundry Co., Brooklyn, N. Y.
Automatic Packaging Machinery Co., Nashua, N. H.
Anderson, Inc., E. D., New York, N. Y.—144–145
Bates Valve Bag Co., New York, N. Y.
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Brown Bag Filling Machine Co., Fitchburg, Mass.—88
Cartoning Machinery Corp., Newport, R. I.—92
Consolidated Packaging Machinery Co., Buffalo, N. Y.—94
Ferguson Co., J. L., Joliet, Ill.—109–112
Hesser Machine Co., New York, N. Y.
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.—87
Packaging Machinery Co., Yonkers, N. Y.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Redington Co., F. B., Chicago, Ill.
Scale & Machinery, Inc., New York, N. Y.
Stokes Machine Co., F. J., Philadelphia, Pa.—174
Stokes & Smith Co., Philadelphia, Pa.—168–169
Triangle Package Machinery Co., Chicago, Ill.

MACHINES, BAG SEALING

See Bag Sealing Machines

MACHINES (Bottle Capping and Sealing)

Aluminum Co. of America, Pittsburgh, Pa.
Anchor Cap & Closure Corp., Long Island City, N. Y.
Consolidated Packaging Mchy. Co., Buffalo, N. Y.—94
Crown Cork & Seal Co., Baltimore, Md.
Elgin Mfg. Co., Elgin, Ill.
Horix Manufacturing Co., Pittsburgh, Pa.—115
Kiefer Machine Co., The Karl, Cincinnati, O.
Owens-Illinois Glass Co., Toledo, O.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
U. S. Bottlers Machinery Corp., Chicago, Ill.
Williams Sealing Corp., Decatur, Ill.

MACHINES (Bottle Washing)

Crown Cork & Seal Co., Baltimore, Md.
Kiefer Machine Co., The Karl, Cincinnati, O.
Owens-Illinois Glass Co., Toledo, O.
Stokes Machine Co., F. J., Philadelphia, Pa.—174
U. S. Bottlers' Machinery Co., Chicago, Ill.

MACHINES, BOX PACKING

Burt Machine Co., Baltimore, Md.—89
Ferguson Co., J. L., Joliet, Ill.—109-112
Knapp Corp, Fred H., Ridgewood, N. J.
Standard Sealing & Equipment Corp., Long Island City, N. Y.

MACHINES, BOX SEALING (Adhesive)

Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Bliss Co., Inc., H. R., Niagara Falls, N. Y.—125-140
Cartoning Machinery Corp., Newport, R. I.—92
Ferguson Co., J. L., Joliet, Ill.—109-112
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.—87
Jones, James H., Chicago, Ill.
Fotdevin Machine Co., Brooklyn, N. Y.
Redington Co., F. B., Chicago, Ill.
Standard Sealing & Equipment Corp., Long Island City, N. Y.
Stokes & Smith Co., Philadelphia, Pa.—168–169

MACHINES, BOX SEALING (Wire)

Acme Staple Co., Camden, N. J.
Bliss Co., Inc., H. R., Niagara Falls, N. Y.—125–140
Latham Machinery Co., Chicago, Ill.
Morrison Co., J. L., Niagara Falls, N. Y.
New Jersey Wire Stitching Co., Camden, N. J.
Saranac Machine Co., Benton Harbor, Mich.—171

MACHINES (Box Strapping)

Acme Steel Co., Chicago, Ill.—80
Gerrard Co., Inc., The, Chicago, Ill.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.—179
Tennant & Sons, C., New York, N. Y.

MACHINES, BUNDLE TYING (Twine)

Bunn Co., B. H., Chicago, Ill.
International Paper Box Machine Co., Nashua, N. H.
National Bundle Tyer Co., Blissfield, Mich.

MACHINES (Butter, Print)

Automat Molding & Folding Co., The, Toledo, O.—82–83
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Redington Co., F. B., Chicago, Ill.

MACHINES (Can Capping)

Aluminum Co. of America, Pittsburgh, Pa.
American Can Co., New York, N. Y.—Insert 80–81
Anchor Cap & Closure Corp., Long Island City, N. Y.
Anderson, Inc., E. D., New York, N. Y.—144–145
Consolidated Packaging Mchy. Co., Buffalo, N. Y.—94
Continental Can Co., New York, N. Y.—Insert 94–95
Elgin Mfg. Co., Elgin, Ill.
Ferguson Co., J. L., Joliet, Ill.—109–112
Kiefer Machine Co., The Karl, Cincinnati, O.
Knowlton Co., M. D., Rochester, N. Y.
Phoenix-Hermetic Co., Chicago, Ill.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
U. S. Bottlers' Machinery Co., Chicago, Ill.
Williams Sealing Corp., Decatur, Ill.

MACHINES (Can Casing)

Burt Machine Co., Baltimore, Md.—89
Ferguson Co., J. L., Joliet, Ill.—109–112
Knapp Corp., Fred H., Ridgewood, N. J.
Standard Sealing & Equipment Corp., Long Island City, N. Y.

MACHINES (Can Closing and Sealing)

American Can Co., New York, N. Y.—Insert 80–81
Consolidated Packaging Machinery Corp., Buffalo, N. Y.—94
Continental Can Co., New York, N. Y.—Insert 94–95
Elgin Mfg. Co., Elgin, Ill.
Ferguson Co., J. L., Joliet, Ill.—109–112
Kiefer Machine Co., The Karl, Cincinnati, O.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
R. C. Can Co., St. Louis, Mo.—164

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listing

U. S. Bottlers' Machinery Co., Chicago, Ill.
Williams Sealing Corp., Decatur, Ill.

MACHINES (Can Filling)

Bruno Mfg. Co., Buffalo, N. Y.
Colton Co., Arthur, Detroit, Mich.—93
Elgin Mfg. Co., Elgin, Ill.
Ferguson Co., J. L., Joliet, Ill—109–112
Filler Machine Co., Inc., Philadelphia, Pa.
Horix Manufacturing Co., Pittsburgh, Pa.—115
Kiefer Machine Co., The Karl, Cincinnati, O.
National Acme Co., Cleveland, O.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Sprague-Sells Corp., Chicago, Ill.
Stokes Machine Co., F. J., Philadelphia, Pa.—174
Stokes & Smith Co., Philadelphia, Pa.—168–169
Triangle Packaging Machinery Co., Chicago, Ill.
U. S. Bottlers' Machinery Co., Chicago, Ill.

MACHINES (Cartoning)

Anderson, Inc., E. D., New York, N. Y.—144–145
Automat Molding & Folding Co., The, Toledo, O.—82–83
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Cartoning Machinery Corp., Newport, R. I.—92
Consolidated Packaging Machinery Corp., Buffalo, N. Y.—94
Ferguson Co., J. L., Joliet, Ill.—109–112
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.—87
Jones & Co., R. A., Covington, Ky.
Peters Machinery Co., Chicago, Ill.—158
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Redington Co., F. B., Chicago, Ill.
Saranac Machine Company, Benton Harbor, Mich.—171
Stokes & Smith Co., Philadelphia, Pa.—168-169

MACHINES (Carton Forming, Lining, Folding and Closing)

See Machines (Cartoning)

MACHINES (Collapsible Tube Filling)

Colton Co., Arthur, Detroit, Mich.—93
Kiefer Machine Co., The Karl, Cincinnati, O.
Stokes Machine Co., F. J., Philadelphia, Pa.—174
Wirz, Inc., A. H., Chester, Pa.—98–99

MACHINES (Corking)

Ermold Co., Edward, New York, N. Y.—108
Kiefer Machine Co., The Karl, Cincinnati, O.
McDonald Engineering Corp., Brooklyn, N. Y.—152–153
U. S. Bottlers' Machinery Co., Chicago, Ill.

MACHINES (Envelope and Bag Filling)

American Machine & Foundry Co., Brooklyn, N. Y.
Anderson, Inc., E. D., New York, N. Y.—144–145
Automatic Packaging Machinery Co., Nashua, N. H.
Brown Bag Filling Machine Co., The, Fitchburg, Mass.—88
Cartoning Machinery Corp., Newport, R. I.—92
Consolidated Packaging Mchny. Corp., Buffalo, N. Y.—94
Ferguson Co., J. L., Joliet, Ill—109–112
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Redington Co., F. B., Chicago, Ill.
Scale & Machinery, Inc., New York, N. Y.
Stokes Machine Co., F. J. Philadelphia, Pa.—174
Stokes & Smith Co., Philadelphia, Po.—168–169
Triangle Package Machinery Co., Chicago, Ill.

MACHINES (Labeling)

Arenco Machine Co., Inc., New York, N. Y.
Burt Machine Co., Baltimore, Md.—89
Economic Machinery Co., Worcester, Mass.—106
Ermold Co., Edward, New York, N. Y.—108
Knapp Corp., Fred H., Ridgewood, N. J.
McDonald Engineering Corp., Brooklyn, N. Y.—152–153
O. & J. Machine Corp., Worcester, Mass.—118
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Potdevin Machine Co., Brooklyn, N. Y.
Redington Co., F. B., Chicago, Ill.
Stokes & Smith Co., Philadelphia, Pa.—168–169

MACHINES, LINING CARTON

Anderson, Inc., E. D., New York, N. Y.—144–145
Automatic Packaging Machinery Co., Nashua, N. H.
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Cartoning Machinery Corp., Newport, R. I.—92
Ferguson Co., J. L., Joliet, Ill.—109–112
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.—87
Peters Machinery Co., Chicago, Ill.—158
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167

MACHINES (Liquid Filling)

American Machine and Foundry Co., Brooklyn, N. Y.
Bruno Mfg. Co., Buffalo, N. Y.
Colton Co., Arthur, Detroit, Mich.—93
Elgin Mfg. Co., Elgin, Ill.
Ferguson Co., J. L., Joliet, Ill.—109–112
Horix Mfg. Co., Pittsburgh, Pa.—115
Kiefer Machine Co., The Karl, Cincinnati, O.
National Acme Co., Cleveland, O.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Stokes Machine Co., F. J., Philadelphia, Pa.—174
U. S. Bottlers' Machinery Co., Chicago, Ill.

MACHINES (Paper Box Forming)

Automatic Packaging Machinery Co., Nashua, N. H.
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Ferguson Co., J. L,. Joliet, Ill.—109-112
Inman Manufacturing Co., Inc., Amsterdam, N. Y.
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.—87
National Folding Box Co., New Haven, Conn.
New Jersey Machine Co., Hoboken, N. J.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Redington Co., F. B., Chicago, Ill.
Saranac Automatic Machine Corp., Benton Harbor, Mich.—171
Self-Locking Machine Co., Chicago, Ill.
Stokes & Smith Co., Philadelphia, Pa.—168–169

MACHINES (Paper Can Making)

Knowlton Co., M. D., Rochester, N. Y.
Langston Co., Samuel M., Camden, N. J.
National Paper Can Co., Milwaukee, Wis.
Staude Manufacturing Co., E. G., St. Paul, Minn.

MACHINES (Roll Wrapping)

Anderson, Inc., E. D., New York, N. Y.—144–145
Package Machinery Co., Springfield, Mass.—162–163
Redington Co., F. B., Chicago, Ill.

MACHINES (Semi-Liquid Filling)

American Machine & Foundry Co., Brooklyn, N. Y.
Filler Machine Co., Inc., Philadelphia, Pa.
Horix Mfg. Co., Pittsburgh, Pa.—115
Kiefer Machine Co., The Karl, Cincinnati, O.
Stokes Machine Co., F. J., Philadelphia, Pa.—174
U. S. Bottlers' Machinery Co., Chicago, Ill.

MACHINES (Shipping Case Sealing)

Bliss Co., Inc., H. R., Niagara Falls, N. Y.—125–140
Ferguson Co., J. L., Joliet, Ill.—109–112
Jones, James H., Chicago, Ill.
Saranac Machine Co., Benton Harbor, Mich.—171
Standard Sealing Equipment Corp., Long Island City, N. Y.

MACHINES (Special Production)

Arenco Machine Co., Inc., New York, N. Y.
Automatic Packaging Machinery Co., Nashua, N. H.
Colton Co., Arthur, Detroit, Mich.—93
Saranac Automatic Machine Corp., Benton Harbar, Mich.—171
Special Production Machines, Inc. (Div. Pneumatic Scale Corp., Ltd.), Norfolk Downs, Mass.—166–167

MACHINES (Tacking)

Acme Staple Co., Camden, N. J.
Automatic Stapler Co., Chicago, Ill.
Bliss Co., Inc., H. R., Niagara Falls, N. Y.—125–140
Gerrard Co., Inc., Chicago, Ill.
New Jersey Wire Stitching Machine Co., Camden, N. J.
Saranac Machine Co., Benton Harbor, Mich.—171
Signode Steel Strapping Co., Chicago, Ill.

MACHINES (Transparent Cellulose Wrapping)

American Machine & Foundry Co., Brooklyn, N. Y.
Anderson Inc., E. D., New York, N. Y.—144–145
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Ferguson Co., J. L., Joliet, Ill.—125–140
International Packing Machinery Co., Chicago, Ill.—157
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.—87
Package Machinery Co., Springfield, Mass.—162–163
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167

MACHINES (Tape Moistening)

Better Packages, Inc., Shelton, Conn.
Edgewater Paper Co., Menasha, Wis.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Hummel Co., A. C., Cincinnati, O.
McLaurin-Jones Co., Brookfield, Mass.—143
Metal Specialties Co., Chicago, Ill.
Mid-States Gummed Paper Co., Chicago, Ill.
Nashua Package Sealing Co., Inc., Nashua, N. H.
Rexford Paper Co., Milwaukee, Wis.

MACHINES (Tight Wrapping)

Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Stokes & Smith Co., Philadelphia, Pa.—168–169

MACHINES (Vacuum Bottle Filling)

Horix Manufacturing Co., Pittsburgh, Pa.—115
Kiefer Machine Co., The Karl, Cincinnati, O.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
U. S. Bottlers' Machinery Co., Chicago, Ill.

MACHINES (Vending)

Consolidated Automatic Merchandising Corp., New York, N. Y.
Doehler Die Castings Co., New York, N. Y.

MACHINES, WRAPPING (Bread)

American Machine & Foundry Co., Brooklyn, N. Y.
Baker-Perkins Co., Saginaw, Mich.
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
National Bread Wrapping Machine Co., Springfield, Mass.

MACHINES, WRAPPING (Butter)

Automat Molding & Folding Co., The, Toledo, O.—82–83
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Package Machinery Co., Springfield, Mass.—162–163
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Redington Co., F. B., Chicago, Ill.

MACHINES, WRAPPING (Cake)

American Machine & Foundry Co., Brooklyn, N. Y.
Baker-Perkins Co., Saginaw, Mich.
Package Machinery Co., Springfield, Mass.—162–163

MACHINES (Wrapping Package)

American Machine & Foundry Co., Brooklyn, N. Y.
Anderson, Inc., E. D., New York, N. Y.—144–145

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listing

Automat Molding & Folding Co., The, Toledo, O.—82–83
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Cartoning Machinery Corp., Newport, R. I.—92
Ferguson Co., J. L., Joliet, Ill.—109–112
International Packaging Machinery Co., Chicago, Ill.—157
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.—87
Package Machinery Co., Springfield, Mass.—162–163
Peters Machinery Co., Chicago, Ill.—158
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Redington Co., F. B., Chicago, Ill.
Stokes & Smith Co., Philadelphia, Pa.—168–169

METAL DISPLAYS (Decorated)

American Can Co., New York, N. Y.—Insert 80–81
Continental Can Co., New York, N. Y.—Insert 94–95
Heekin Can Co., Cincinnati, O.
Metal Package Corp., New York, N. Y.—146
Robertson Steel & Iron Co., W. F., Springfield, O.
Tin Decorating Co., Baltimore, Md.

PACKAGE DESIGN

American Colortype Co., New York, N. Y.
Bendix Paper Co., New York, N. Y.
Bicknell & Fuller Paper Box Co., Boston, Mass. 102–103
Boonton Molding Co., Boonton, N. J.
Brooks & Porter, Inc., New York—97
Brooks Bank Note Co., Springfield, Mass.
Brown & Bailey Co., Philadelphia, Pa.
Burt Co., Ltd., F. N., Buffalo, N. Y.
Cambridge Paper Box Co., Cambridge, Mass.—90
Consolidated Paper Co., Monroe, Mich.—141
Container Corp. of America, Chicago, Ill.—Insert 94–95
Crescent Engraving Co., Kalamazoo, Mich.
Dennison Mfg. Co., Framingham, Mass.
Du Pont Cellophane Co., Inc., New York, N. Y.
Forsman Co., C. H., Inc., New York, N. Y.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—Insert 106–107
Gair Co., Robert, New York, N. Y.
Heywood Co., R. R., New York, N. Y.
Industrial Art Counsel, Inc., New York, N. Y.
Karle Lithographic Co., Rochester, N. Y.
Kurz-Kasch Co., The, Dayton, O.—122–123
Little Co., John W., Pawtucket, R. I.
Mason Box Co., The, Attleboro Falls, Mass.—Insert 150–151
Monarch Nusbaum Paper Box Co., Inc., Buffalo, N. Y.
Norton Laboratories, Inc., Lockport, N. Y.—154–155
Owens-Illinois Glass Co., Toledo, O.
Package Design Corp., New York, N. Y.—151, 160–161
Reynolds Metals Co., Inc., New York, N. Y.—173
Richardson Co., The, Lockland, O.
Ritchie & Co., W. C., Chicago, Ill.
Robertson Paper Box Co., Inc., Montville, Conn.
Rowell Co., Inc., E. N., Batavia, N. Y.
Schmidt Litho. Co., Theo. A., Chicago, Ill.
Schulz Co., A. Geo., Milwaukee, Wis.
Sears Paper Box Co., Merle, Danville, Ill.—190–191
Sutherland Paper Co., Kalamazoo, Mich.
Sylvania Industrial Corp., New York, N. Y.—Insert 164–165
Young Bros. Co., Providence, R. I.—193

PACKAGE INSERTS

Art Gravure Corp., New York, N. Y.—Insert 84–85

(See Lithographers)

PACKAGE WRAPS

See Box Wraps

PACKING MATERIAL (Absorbent)

International Paper Co., New York, N. Y.
Kimberly-Clark Corp., Neenah, Wis.—148–149
Rochester Folding Box Co., Rochester, N. Y.

PADS (Absorbent Packing)

International Paper Co., New York, N. Y.
Kimberly-Clark Corp., Chicago, Ill.—148–149
Rochester Folding Box Co., Rochester, N. Y.

PAILS (Fibre)

Arvey Manufacturing Co., Chicago, Ill.
Container Corp. of America, Chicago, Ill.—96
Marathon Paper Mills Co., Rothschild, Wis.
Master Package Corp., Owen, Wis.
Menasha Products Co., Chicago, Ill.
Sutherland Paper Co., Kalamazoo, Mich.

PAPERS (Cheviot)

Bradner Smith & Co., Chicago, Ill.
Cranmer Co., Harry M., Boston, Mass.—95
Datz & Son, A. S., Philadelphia, Pa.
Dejonge & Co., Louis, New York, N. Y.—105
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Hughes and Hoffman, New York, N. Y.—Insert 116–117
Kimberly-Clark Corp., Neenah, Wis.—148–149
Knowlton Bros., Watertown, N. Y.
Matthias & Freeman Paper Co., Philadelphia, Pa.
Pejepscot Paper Co., New York, N. Y.
Queen City Paper Co., Cincinnati, O
Schild & Company, William, Chicago, Ill.—177
Schulman Co., Louis, New York, N. Y.
Walther & Co., Inc., Brooklyn, N. Y.

PAPER (Embossed)

Artcote Papers, Inc., Irvington, N. J.—Insert 88–89
Beekman Paper & Card Co., Inc., New York, N. Y.
Bendix Paper Co., New York, N. Y.
Bradner Smith & Co., Chicago, Ill.
Carpenter Co., L. E., Newark, N. J.—91
Collins Mfg. Co., A. M., Philadelphia, Pa.—Insert 114–115
Cranmer Co., Harry M., Boston, Mass.—95
Datz & Son, A. S., Philadelphia, Pa.
Dejonge & Co., Louis, New York, N. Y.—105
District of Columbia Paper Mfg. Co., Washington, D. C.
Griffith Paper Sales Co., Philadelphia, Pa.
Hampden Glazed Paper & Card Co., Holyoke, Mass.—Insert 156–157
Hazen Paper Corp., Holyoke, Mass.—Insert 180–181
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Hughes and Hoffman, New York, N. Y.—Insert 116–117
Keller-Dorian Paper Co., New York, N. Y.
McLaurin-Jones Co., Brookfield, Mass.—143
Marvellum Co., Holyoke, Mass.—Insert 170–171
Matthias & Freeman Paper Co., Philadelphia, Pa.
Metz Paper Co., Pawtucket, R. I.
Middlesex Products Co., Boston, Mass.—119
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
National Coated Paper Corp., Pawtucket, R. I.
New England Card & Paper Co., Springfield, Mass.
New York-New England Paper Co., Holyoke, Mass.
Paper Service Co., Philadelphia, Pa.
Pauli Corp., Karl, New York, N. Y.
Pinco Papers, Inc., Camden, N. J.
Queen City Paper Co., Cincinnati, O.
Royal Card & Paper Co., New York, N. Y.
Schild & Company, William, Chicago, Ill.—177
Schulman Co., Louis, New York, N. Y.
Springfield Glazed Paper Co., Springfield, Mass.
Tamm & Co., New York, N. Y.
Tuttle Press Co., The, Appleton, Wis.
Walther & Co., Inc., Brooklyn, N. Y.
Whiting Co., Inc., C. R., Newark, N. J.—182
Whiting-Patterson Co., Inc., New York, N. Y. —187
Williams & Co., Inc., Chas. W., New York, N. Y.—Insert 140–141

PAPER (Embossed Glassine)

Cranmer Co., Harry M., Boston, Mass.—95
Datz & Son, A. S., Philadelphia, Pa.
Deerfield Glassine Co., Monroe Bridge, Mass.—Insert 172–173
Hartford City Paper Co., Hartford City, Ind.
Matthias & Freeman Paper Co., Philadelphia, Pa.
McDowell Paper Mill, Philadelphia, Pa.
Package Paper Co., Holyoke, Mass.
Queen City Paper, Cincinnati, O.
Rhinelander Paper Co., Rhinelander, Wis.
Riegel Paper Corp., New York, N. Y.—170
Schulman Co., Louis, New York, N. Y.
Sweetnam, Inc., Geo. H., Cambridge, Mass.
Westfield River Paper Co., Inc., Russell, Mass. —188

PAPER (Embossed Metal)

Artcote Papers, Inc., Irvington, N. J.—Insert 88–89
Aluminum Co. of America, Fittsburgh, Pa.
Bendix Paper Co., New York, N. Y.
Collins Mfg. Co., A. M., Philadelphia, Pa.—Insert 114–115
Datz & Son, A. S., Philadelphia, Pa.
Dejonge & Co., Louis, New York, N. Y.—105
Hampden Glazed Paper & Card Co., Holyoke, Mass.—Insert 156–157
Hughes & Hoffman, New York, N. Y.—Insert 116–117
Keller-Dorian Paper Co., New York, N. Y.
McLaurin-Jones Co., Brookfield, Mass.—143
Middlesex Products Co., Boston, Mass.—119
Pauli Corp., Karl, New York, N. Y.
Reynolds Metals Co., New York, N. Y.—173
Schulman Co., Louis, New York, N. Y.
Tamm & Co., New York, N. Y.
Whiting Co., Inc., C. R., Newark, N. J.—182
Whiting-Patterson Co., Inc., New York, N. Y —187
Williams & Co., Inc., Chas. W., New York, N. Y.—Insert 140–141

PAPERS, FANCY (Printed)

American Colortype Co., New York, N. Y.
Beekman Paper & Card Co., New York, N. Y.
Bendix Paper Co., New York, N. Y.
Bradner Smith & Co., Chicago, Ill.
Carpenter Co., L. E., Newark, N. J.—91
Collins Mfg. Co., A. M., Philadelphia, Pa.—Insert 114–115
Cranmer Co., Harry M., Boston, Mass.—95
Datz & Son, A. S., Philadelphia, Pa.
Defiance Paper Co., Niagara Falls, N. Y.
Dejonge & Co., Louis, New York, N. Y.—105
District of Columbia Paper Mfg. Co., Washington, D. C.
Griffith Paper Sales Co., Philadelphia, Pa.
Hampden Glazed Paper & Card Co., Holyoke, Mass.—Insert 156–157
Hazen Paper Co., Holyoke, Mass.—Insert 180–181
Holyoke Card & Paper Co., Springfield, Mass.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Hughes and Hoffman, New York, N. Y.—Insert 116–117
Japan Paper Co., New York, N. Y.
Keller-Dorian Paper Co., New York, N. Y.
Kimberly-Clark Corp., Neenah, Wis.—148–149
Kupfer Bros. Co., New York, N. Y.
McLaurin-Jones Co., Brookfield, Mass.—143
Marvellum Co., Holyoke, Mass.—Insert 170–171
Matthias & Freeman Paper Co., Philadelphia, Pa.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
New England Card & Paper Co., Springfield, Mass.
New York-New England Paper Co., Holyoke, Mass.
Orchard Paper Co., St. Louis, Mo.
Paper Service Co., Philadelphia, Pa.
Pauli Corp., Karl, New York, N. Y.
Pinco Papers, Inc., Camden, N. J.
Queen City Paper Co., Cincinnati, O.
Royal Card & Paper Co., New York, N. Y.
Royston Paper Co., The, Milltown, N. J.
Schild Co., Wm., Chicago, Ill.—177
Schulman Co., Louis, New York, N. Y.
Sweetnam, Inc., Geo. H., Cambridge, Mass.
Tamm & Co., New York, N. Y.
Tuttle Press Co., The, Appleton, Wis.
Walther & Co., Brooklyn, N. Y.
Whiting Co., Inc., C. R., Newark, N. J.—182
Whiting-Patterson Co., Inc., New York, N. Y. —187
Williams & Co., Inc., Chas. W., New York, N. Y.—Insert 140–141

PAPERS (Flint Glazed)

Bradner Smith & Co., Chicago, Ill.
Cranmer Co., Harry M., Boston, Mass.—95
Datz & Son, A. S., Philadelphia, Pa.
Dejonge & Co., Louis, New York, N. Y.—105
Griffith Paper Sales Co., Philadelphia, Pa.
Hampden Glazed Paper & Card Co., Holyoke, Mass.—Insert 156–157
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Hughes and Hoffman, New York, N. Y.—Insert 116–117
Keller-Dorian Paper Co., New York, N. Y.
Matthias & Freeman Paper Co., Philadelphia, Pa.

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listing

Metz Paper Co., Pawtucket, R. I.
Paper Service Co., Philadelphia, Pa.
Pinco Papers, Inc., Camden, N. J.
Queen City Paper Co., Cincinnati, O.
Schild Co., Wm., Chicago, Ill.—177
Schulman Co., Louis, New York, N. Y.
Springfield Glazed Paper Co., Springfield, Mass.
Walther & Co., Brooklyn, N. Y.
Whiting Co., Inc., C. R., Newark, N. J.—182
Whiting-Patterson Co., Inc., New York, N. Y. —187
Williams & Co., Inc., Chas. W., New York, N. Y.—Insert 140–141
Wyomissing Glazed Paper Co., Reading, Pa.

PAPERS (Friction Glazed)

Appleton Coated Paper Co., Appleton, Wis.
Bradner Smith & Co., Chicago, Ill.
Cranmer Co., Harry M., Boston, Mass.—95
Datz & Son, A. S., Philadelphia, Pa.
Dejonge & Co., Louis, New York, N. Y.—105
Griffith Paper Sales Co., Philadelphia, Pa.
Hampden Glazed Paper & Card Co., Holyoke, Mass.—Insert 156–157
Holyoke Card & Paper Co., Springfield, Mass.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Hughes and Hoffman, New York, N. Y.—Insert 116–117
Marvellum Co., Holyoke, Mass.—Insert 170–171
Matthias & Freeman Paper Co., Philadelphia, Pa.
Metz Paper Co., Pawtucket, R. I.
Middlesex Products Co., Boston, Mass.—119
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
National Coated Paper Corp., Pawtucket, R. I.
New England Card & Paper Co., Springfield, Mass.
Paper Service Co., Philadelphia, Pa.
Pinco Papers, Inc., Camden, N. J.
Queen City Paper Co., Cincinnati, O.
Schild Co., Wm., Chicago, Ill.—177
Schulman Co., Louis, New York, N. Y.
Springfield Glazed Paper Co., Springfield, Mass.
Walther & Co., Brooklyn, N. Y.
Whiting Co., Inc., C. R., Newark, N. J.—182
Whiting-Patterson Co., Inc., New York, N. Y. —187
Williams & Co., Inc., Chas. W., New York, N. Y.—Insert 140–141
Wyomissing Glazed Paper Co., Reading, Pa.

PAPERS (Gelatine)

Bendix Paper Co., New York, N. Y.
Bondy-Herman Co., Chicago, Ill.
Matthias & Freeman Paper Co., Philadelphia, Pa.
Stahl, G. A., Philadelphia, Pa.

PAPER (Glassine)

Central Waxed Paper Co., Chicago, Ill.
Cranmer Co., Harry M., Boston, Mass.—95
Deerfield Glassine Co., Monroe Bridge, Mass. —Insert 172–173
Glassine Paper Co., West Conshohocken, Pa.
Hamersley Mfg. Co., Garfield, N. J.
Hartford City Paper Co., Hartford City, Ind.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Matthias & Freeman Paper Co., Philadelphia, Pa.
McDowell Paper Mills, Philadelphia, Pa.
Newark Paraffine & Parchment Paper Co., Newark, N. J.—150
Package Paper Co., Holyoke, Mass.
Queen City Paper Co., Cincinnati, O.
Rhinelander Paper Co., Rhinelander, Wis.
Riegel Paper Corp., New York, N. Y.—170
Transcello Paper Co., Milwaukee, Wis.—183
United States Envelope Co., Springfield, Mass.
Westfield River Paper Co., Inc., Russell, Mass. —188

PAPER (Greaseproof)

American Tissue Mills, Holyoke, Mass.
Central Waxed Paper Co., Chicago, Ill.
Deerfield Glassine Co., Monroe Bridge, Mass. —Insert 172–173
Du Pont Cellophane Co., Inc., New York, N. Y.
Gardner & Harvey Co., The, Middletown, O.
Glassine Paper Co., West Conshohocken, Pa.
Hamersley Mfg. Co., Garfield, N. J.
Hartford City Paper Co., Hartford City, Ind.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—116
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
Newark Paraffine & Parchment Paper Co., Newark, N. J.—150
Ohio Waxed Paper Co., Columbus, O.
Package Paper Co., Holyoke, Mass.
Paterson Parchment Paper Co., Passaic, N. J.
Queen City Paper Co., Cincinnati, O.
Rhinelander Paper Co., Rhinelander, Wis.
Riegel Paper Corp., New York, N. Y.—170
Shawmut Waxed Paper Co., Holliston, Mass.
Specialty Papers Co., Dayton, O.
Sylvania Industrial Corp., New York, N. Y.—Insert 164–165
West Carrollton Parchment Co., West Carrollton, O.
Westfield River Paper Co., Inc., Russell, Mass. —188

PAPER (Gummed)

Artcote Papers, Inc., Irvington, N. J.—Insert 88–89
Bradner Smith & Co., Chicago, Ill.
Chicago Gummed Tape Co., Chicago, Ill.
Datz & Son, A. S., Philadelphia, Pa.
Edgewater Paper Co., Menasha, Wis.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
May Co., J. L., New York, N. Y.
McLaurin-Jones Co., Brookfield, Mass.—143
Mid-States Gummed Paper Co., Chicago, Ill.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
Peerless Paper Specialty Co., Philadelphia, Pa.
Queen City Paper Co., Cincinnati, O.
Rexford Paper Co., Milwaukee, Wis.
St. Louis Sticker Co., St. Louis, Mo.
Shuman Co., Frank G., Chicago, Ill.—Insert 186–187
Tablet & Ticket Co., The, Chicago, Ill.—181
Whiting-Patterson Co., Inc., New York, N. Y. —187

PAPER (Imitation Leather)

Carpenter Co., L. E., Newark, N. J.—91
Collins Manufacturing Co., A. M., Philadelphia, Pa.—Insert 114–115
Datz & Son, A. S., Philadelphia, Pa.
Hampden Glazed Paper & Card Co., Holyoke, Mass.—Insert 156–157
Keller-Dorian Paper Co., Inc., New York, N. Y.
Schulman Co., Louis, New York, N. Y.
Whiting Co., Inc., C. R., New York, N. Y.—182
Whiting-Patterson Co., Inc., New York, N. Y. —187

PAPERS (Lithographed, Fancy)

Addison Lithographing Co., Rochester, N. Y.
American Colortype Co., New York, N. Y.
Central Litho. Co., Cleveland, O.
Heywood & Co., R. R., New York, N. Y.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Kupfer Bros., New York, N. Y.
Schmidt Litho. Co., Theo. A., Chicago, Ill.
Tamm & Co., New York, N. Y.
Trautmann-Bailey & Blampey, New York, N. Y. —Insert 178–179
Williams & Co., Inc., Chas. W., New York, N. Y.—Insert 140–141

PAPER (Metallic Coated, Plain and Embossed)

Aluminum Co. of America, Pittsburgh, Pa.
Appleton Coated Paper Co., Appleton, Wis.
Artcote Papers, Inc., Irvington, N. J.—Insert 88–89
Beekman Paper & Card Co., New York, N. Y.
Bendix Paper Co., New York, N. Y.
Bradner Smith & Co., Chicago, Ill.
Collins Mfg. Co., A. M., Philadelphia, Pa.—Insert 114–115
Cranmer Co., The Harry M., Boston, Mass.—95
Datz & Son, A. S., Philadelphia, Pa.
Dejonge & Co., Louis, New York, N. Y.—105
Griffith Paper Sales Co., Philadelphia, Pa.
Hampden Glazed Paper & Card Co., Holyoke, Mass.—Insert 156–157
Hughes & Hoffman, New York, N. Y.—Insert 116–117
Keller-Dorian Paper Co., New York, N. Y.
McLaurin-Jones Co., Brookfield, Mass—143
Marvellum Co., Holyoke, Mass.—Insert 170–171
Matthias & Freeman Paper Co., Philadelphia, Pa.
Metz Paper Co., Pawtucket, R. I.
Middlesex Products Co., Boston, Mass.—119
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
National Coated Paper Corp., Pawtucket, R. I.
New England Card & Paper Co., Springfield, Mass.
New York & New England Paper Co., Holyoke, Mass.
Paper Service Co., Philadelphia, Pa.
Pauli Corp., Karl, New York, N. Y.
Pinco Papers, Inc., Camden, N. J.
Reynolds Metals Co., Louisville, Ky.—173
Royal Card & Paper Co., New York, N. Y.
Schild Co., Wm., Chicago, Ill.—177
Schulman Co., Louis, New York, N. Y.
Springfield Glazed Paper Co., Springfield, Mass.
Tamm & Co., New York, N. Y.
Tuttle Press Co., The, Appleton, Wis.
Walther & Co., Brooklyn, N. Y.
Whiting Co., Inc., C. R., Newark, N. J.—182
Whiting-Patterson Co., Inc., New York, N. Y. —187
Williams & Co., Inc., Chas. W., New York, N. Y.—Insert 140–141

PAPER, PARCHMENT

Hamersley Mfg. Co., Garfield, N. J.
Hazen Paper Co., Holyoke, Mass.—Insert 180–181
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—116
Paterson Parchment Paper Co., Passaic, N. J.
West Carrollton Parchment Co., West Carrollton, O.

PAPER (Parchment, Vegetable)

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—116
Paterson Parchment Paper Co., Passaic, N. J.
West Carrollton Parchment Co., West Carrollton, O.

PAPERS (Plated)

Blackstone Glazed Paper Co., Pawtucket, R. I.
Bradner Smith & Co., Chicago, Ill.
Cranmer Co., The Harry M., Boston, Mass.—95
Datz & Son, A. S., Philadelphia, Pa.
Dejonge & Co., Louis, New York, N. Y.—105
Griffith Paper Sales Co., Philadelphia, Pa.
Hampden Glazed Paper & Card Co., Holyoke, Mass.—Insert 156–157
Holyoke Card & Paper Co., Springfield, Mass.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Hughes & Hoffman, New York, N. Y.—Insert 116–117
McLaurin-Jones Co., Brookfield, Mass.—143
Matthias & Freeman Paper Co., Philadelphia, Pa.
Metz Paper Co., Pawtucket, R. I.
Middlesex Products Co., Boston, Mass.—119
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
National Coated Paper Corp., Pawtucket, R. I.
New England Card & Paper Co., Springfield, Mass.
Paper Service Co., Philadelphia, Pa.
Pawtucket Glazed Paper Co., Pawtucket, R. I.
Pinco Papers, Inc., Camden, N. J.
Queen City Paper Co., Cincinnati, O.
Schild & Co., Wm., Chicago, Ill.—177
Schulman, Louis, New York, N. Y.
Springfield Glazed Paper Co., Springfield, Mass.
Walther & Co., Brooklyn, N. Y.
Whiting-Patterson Co., Inc., New York, N. Y. —182
Williams & Co., Inc., Chas. W., New York, N. Y.—Insert 140–141
Wyomissing Glazed Paper Co., Reading, Pa.

PAPER, VELOUR (Plain, Printed, Embossed)

Bendix Paper Co., New York, N. Y.
Datz Co., A. S., Philadelphia, Pa.
District of Columbia Paper Co., Washington, D. C.
Keller-Dorian Paper Co., New York, N. Y.
Mosinee Mills, Chicago, Ill.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
Schulman Co., Louis, New York, N. Y.
Stahl Co., G. A., Philadelphia, Pa.
Waterproof Fabrics, Inc., Philadelphia, Pa.
Williams Co., Chas. W., New York, N. Y.—Insert 140–141

PAPER, Waterproof (Fancy, Plain and Embossed)

Artcote Papers, Inc., Irvington, N. J.—Insert 88–89
Carpenter Co., L. E., Newark, N. J.—91

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listing

McLaurin-Jones Co., Brookfield, Mass.—143
Middlesex Products Co., Boston, Mass.—119
Whiting Co., C. R., Newark, N. J.—182

PAPER (Waxed)

American Bread Wrapper Co., Chicago, Ill.
American Tissue Mills, Holyoke, Mass.
Bennington Wax Paper Co., Bennington, Vt.
Central Waxed Paper Co., Chicago, Ill.
Continental Paper & Bag Corp., New York, N. Y.
Detroit Wax Paper Co., Detroit, Mich.
General Waxed Paper Co., Inc., The, Thompsonville, Conn.
Hamersley Mfg. Co., Garfield, N. J.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—116
Menasha Products Co., Chicago, Ill.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
Newark Paraffine & Parchment Paper Co., Newark, N. J.—150
Ohio Wax Paper Co., Columbus, O.
Otsego Waxed Paper Co., Otsego, Mich.
Package Paper Co., Holyoke, Mass.
Paterson Parchment Paper Co., Passaic, N. J.
Riegel Paper Corp., New York, N. Y.—170
Shawmut Waxed Paper Co., Holliston, Mass.
Specialty Paper Co., Dayton, O.
Waterproof Board & Paper Co., Cincinnati, O.
West Carrollton Parchment Co., West Carrollton, O.

PAPER (Wrapping)

Brown Co., Portland, Me.
Continental Paper & Bag Corp., New York, N. Y.
Defiance Paper Co., Niagara Falls, N. Y.
Edgewater Paper Co., Menasha, Wis.
International Paper Co., New York, N. Y.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—116
Mosinee Mills, Chicago, Ill.
Orono Pulp & Paper Co., Bangor, Me.
Paterson Parchment Paper Co., Passaic, N. J.
Pilcher, Hamilton Co., Chicago, Ill.
Riegel Paper Corp., New York, N. Y.—170
Sisalkraft Co., Chicago, Ill.

PAPER (Wrapping, Fancy Tissue)

Beekman Card & Paper Co., New York, N. Y.
Bradner Smith & Co., Chicago, Ill.
Collins Mfg. Co., A. M., Philadelphia, Pa.—Insert 114–115
Datz & Son, A. S., Philadelphia, Pa.
Dejonge & Co., Louis, New York, N. Y.—105
Hampden Glazed Paper & Card Co., Holyoke, Mass.—Insert 156–157
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Hughes and Hoffman, New York, N. Y.—Insert 116–117
Japan Paper Co., New York, N. Y.
Keller-Dorian Paper Co., New York, N. Y.
Marvellum Co., Holyoke, Mass—Insert 170–171
Matthias & Freeman Paper Co., Philadelphia, Pa.
Nashua Gummed & Coated Paper Co., Holyoke, Mass.
Paper Service Co., Philadelphia, Pa.
Royal Card & Paper Co., New York, N. Y.
Schulman Co., Louis, New York, N. Y.
Tamm & Co., New York, N. Y.
Tuttle Press Co., The, Appleton, Wis.
Whiting Co., Inc., C. R., Newark, N. J.—182
Whiting-Patterson Co., Inc., New York, N. Y.—187
Williams & Co., Inc., Chas. W., New York, N. Y.—Insert 140–141

PASTES

See Adhesives

PUMPS, ROTARY AND CENTRIFUGAL

Kiefer Machine Co., The Karl, Cincinnati, O.
U. S. Bottlers' Machinery Co., Chicago, Ill.

REGISTERS (Autographic and Manifold)

Egry Register Co., The, Dayton, O.
Hamilton Autographic Register Co., The, Hamilton, O.
Standard Register Co., Dayton, O.
Stokes Machine Co., F. J., Philadelphia, Pa.—174
United Autographic Register Co., Chicago, Ill.

ROLL LEAF

Alchemic Gold Co., New York, N. Y.
All-Purpose Roll Leaf Co., Brooklyn, N. Y.
American Embossing Foil Co., Providence, R. I.
Coughlin Manufacturing Co., New York, N. Y.
Griffin & Sons Co., The H., New York, N. Y.
Matthias & Freeman Paper Co., Philadelphia, Pa.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
Peerless Roll Leaf Co., Inc., New York, N. Y.—159
Rauskolb Co., F. W., Medford, Mass—165
Queen City Paper Co., Cincinnati, O.

ROPE AND TWINE

American Manufacturing Co., Brooklyn, N. Y.
Ames Harris Neville Co., San Francisco, Cal.
Chelsea Fibre Mills, Brooklyn, N. Y.
Columbian Rope Co., Rome, N. Y.
Mengden & Sons Co., Chicago, Ill.

SCALES (Automatic Check Weighers)

Elder & Robinson Co., Chicago, Ill.
Exact Weight Scale Co., Columbus, O.
Jacobs Bros. Co., Brooklyn, N. Y.
Merrick Scale Mfg. Co., Passaic, N. J.—142
Toledo Scale Co., Toledo, O.

SCALES (Automatic Weighing, Filling)

American Machine & Foundry Co., Brooklyn, N. Y.
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Consolidated Packaging Mchny. Corp., Buffalo, N. Y.—94
Exact Weight Scale Co., Columbus, O.
Ferguson Co., J. L., Joliet, Ill.—109-112
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.—87
Packaging Machinery Co., Yonkers, N. Y.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Scale & Machinery, Inc., New York, N. Y.
Stokes & Smith Co., Philadelphia, Pa.—168–169
Stokes Machine Co., F. J., Philadelphia, Pa.—174
Toledo Scale Co., Toledo, O.
Triangle Package Machinery Co., Chicago, Ill.
U. S. Bottlers' Machinery Co., Chicago, Ill.

SCALES (Freight, Express)

American Krohn Scale Co., New York, N. Y.
American Scale Co., Kansas City, Mo.
Beckman Bros., Des Moines, Iowa.
Brunner Foundry & Mchny. Co., Peru, Ill.
Buffalo Scale Mfg. Co., Inc., Buffalo, N. Y.
Chicago Scale Co., Chicago, Ill.
Dayton Scale Co., Dayton, O.
Exact Weight Scale Co., Columbus, O.
Fairbanks-Morse Co., Chicago, Ill.
Fairbanks Co., New York, N. Y.
General Automatic Scale Co., St. Louis, Mo.
Howe Scale Co., Rutland, Vt.
International Business Machines Corp., New York, N. Y.
Jacobs Bros. Co., Brooklyn, N. Y.
National Scale Corp., Chicopee Falls, Mass.
Standard Scale & Supply Co., Pittsburgh, Pa.
Toledo Scale Co., Toledo, O.
Triner Sales Co., Chicago, Ill.

SCALES (Net Weighers)

American Machine & Foundry Co., Brooklyn, N. Y.
Consolidated Packaging Mchny. Corp., Buffalo, N. Y.—94
Ferguson Co., J. L., Joliet, Ill.—109–112
Johnson Automatic Sealer Co., Battle Creek, Mich.—87
Packaging Machinery Co., Yonkers, N. Y.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Small Mfg. Co., Inc., C. T., St. Louis, Mo.
Stokes Machine Co., F. J., Philadelphia, Pa.—174
Stokes & Smith Co., Philadelphia, Pa.—168–169
Triangle Package Machinery Co., Chicago, Ill.

SEALING COMPOUNDS

See Adhesives

SEALS (Bottle and Jar)

See Caps (Bottle and Jar)

SEALS, EMBOSSED

Davenport Taylor Mfg. Co., Chicago, Ill.—107
Foxon Co., The, Providence, R. I.—113
Grand Rapids Label Co., Grand Rapids, Mich.
Horn, John M., New York, N. Y.
Kaumagraph Co., New York, N. Y.—117
Krause, Richard M., New York, N. Y.
Lambooy Label & Wrapper Co., Kalamazoo, Mich.
Reynolds Metals Co., Inc., New York, N. Y.—173
Shuman Co., Frank G., Chicago, Ill.—Insert 186–187
St. Louis Sticker Co., St. Louis, Mo.
Tablet and Ticket Co., The, Chicago, Ill.—181

SEALERS (Cartons and Packages)

Anderson, Inc., E. D., New York, N. Y.—144–145
Battle Creek Wrapping Machine Co., Battle Creek, Mich.—86
Bliss Company, Inc., H. R., Niagara Falls, N. Y.—125–140
Cartoning Machinery Corp., Newport, R. I.—92
Consolidated Packaging Mchny. Corp., Buffalo, N. Y.—94
Ferguson Co., J. L., Joliet, Ill—109–112
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.—87
Peters Machine Co., Chicago, Ill.—158
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—166–167
Standard Sealing Equipment Corp, Long Island City, N. Y.
Stokes & Smith Co., Philadelphia, Pa.—168–169
Triangle Package Machinery Co., Chicago, Ill.
U. S. Bottlers' Machinery Co., Chicago, Ill.

SILICATE-OF-SODA

Cibara Mfg. Co., St. Louis, Mo.
Findley Co., The F. G., Milwaukee, Wis.
Grasselli Chemical Co., The, Cleveland, O.
Jones, James H., Chicago, Ill.
Mechling Bros. Chemical Co., Camden, N. J.
National Adhesives Corp., New York, N. Y.
Philadelphia Quartz Co., Philadelphia, Pa.
River Raisin Paper Co., Monroe, Mich.
Standard Silicate Co., Cincinnati, O.

SPECIAL ROLL LEAF STAMPING EQUIPMENT

Griffin & Sons Co., The H., New York, N. Y.
Peerless Roll Leaf Co., New York, N. Y.—159
Thomson National Press Co., Franklin, Mass.

SPRINKLER TOPS

Art Tube Co., Irvington, N. J.
Bridgeport Metal Goods Mfg. Co., Bridgeport, Conn.
Imperial Metal Mfg. Corp., Long Island City, N. Y.
Feerless Tube Co., Bloomfield, N. J.—189
R. C. Can Co., St. Louis, Mo.—164
Scovill Manufacturing Co., Waterbury, Conn.
Sun Tube Corp., Hillside, N. J.
White Metal Mfg. Co., Hoboken, N. J.
Wirz, Inc., A. H., Chester, Pa.—98–99

STENCIL BOARD AND BRUSHES (Cutting Machines)

Botts Mfg. Co., Brooklyn, N. Y.
Bradley Stencil Machine Co., St. Louis, Mo.
Burhop Paper Co., Chicago, Ill.
Cross-Glave Co., Inc., Syracuse, N. Y.
Diagraph Stencil Machine Corp., St. Louis, Mo.
Garvey Fountain & Ink Co., St. Louis, Mo.
Gibson Co., Inc., A. C., Buffalo, N. Y.
Ideal Stencil Machine Co., Belleville, Ill.
Marsh Stencil Machine Co., Belleville, Ill.
Shaw Co., The E. C., Cincinnati, O.
Wisconsin Paper & Products Co., Milwaukee, Wis.

STRAPPING (Box)

Acme Steel Co., Chicago, Ill.—80
Gerrard Co., Inc., Chicago, Ill.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.—179
Tennant & Sons, C. W., New York, N. Y.

TACKING MACHINES

Acme Staple Co., Camden, N. J.
Automatic Stapler Co., Chicago, Ill.
Bliss Co., Inc., H. R., Niagara Falls, N. Y.—80
Ideal Stitcher & Mfg. Co., Racine, Wis—Insert 176–177
Latham Machinery Co., Chicago, Ill.
New Jersey Wire Stitching Machine Co., Camden, N. J.
Saranac Machine Co., Benton Harbor, Mich.—171

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listing

TAGS (Shipping, Merchandise)

Danbury Square Box Co., The, Danbury, Conn.
International Tag Co., Chicago, Ill.
Little Co., John W., Pawtucket, R. I.
May Co., The J. L., New York, N. Y.
Milwaukee Printing Co., Milwaukee, Wis.

TAPE (Cloth Gummed)

Artcote Papers, Inc., Irvington, N. J.—Insert 88–89
Chicago Gummed Tape Co., Chicago, Ill.
Crowell Corp., Yorklyn, Del.
Datz & Son, A. S., Philadelphia, Pa.
Gane Bros. & Lane, Inc., Chicago, Ill.
Gummed Products Co., The, Troy, O.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
McLaurin-Jones Co., Brookfield, Mass.—143
Mid-States Gummed Paper Co., Chicago, Ill.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
Queen City Paper Co., Cincinnati, O.
Rexford Paper Co., Milwaukee, Wis.
Schulman Co., Louis, New York, N. Y.
Whiting Co., Inc., C. R., Newark, N. J.—182
Whiting-Patterson Co., Inc., Philadelphia, Pa.—187

TAPE (Paper Gummed)

See Gummed Tape

TAPE MOISTENERS

Better Packages, Inc, Shelton, Conn
Edgewater Paper Co., Menasha, Wis.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Hummel Co., A. C., Cincinnati, O.
McLaurin-Jones Co., Brookfield, Mass.—143
Metal Specialties Co., Chicago, Ill.
Nashua Package Sealing Co., Inc., Nashua, N. H.
Rexford Paper Co., Milwaukee, Wis.

TARPAULINS, WATERPROOFED

Ames Harris Neville Co., San Francisco, Cal.
Astrup Co., Cleveland, O.
Atlanta Tent & Awning Co., Atlanta, Ga.
Boyle & Co., Inc., John, Brooklyn, N. Y.
Brooklyn Bag Mfg. Co., Brooklyn, N. Y.
Buckeye Tent & Awning Mfg. Co., Columbus, O.
Carpenter & Co., Chicago, Ill.
Channon Co., H., Chicago, Ill.
Clifton Mfg. Co., Waco, Tex.
Donnelly, Son & Putnam, New York, N. Y.
Fulton Bag & Cotton Mills, Brooklyn, N. Y.
Hetterick Mfg. Co., Toledo, O.
Pittsburgh Waterproof Co., Pittsburgh, Pa.
Reach Textile Co., A. L., New York, N. Y.
Safepack Mills, Millis, Mass.
Upson-Walton Co., Cleveland, O.

TESTERS (Paper and Board)

Cady & Co., E. J., Chicago, Ill.
Perkins & Son, Inc., B. F., Holyoke, Mass.

TIERING MACHINES

Barrett-Cravens Co., Chicago, Ill.
Crescent Truck Co., Lebanon, Pa.
Economy Eng. Co., Chicago, Ill.
Elwell-Parker Electric Co., The, Cleveland, O.
Gifford-Wood Co., Hudson, N. Y.
Hebard & Co., W. F., Chicago, Ill.
Lewis-Shephard Co., Boston, Mass.
Revolvator Co., Jersey City, N. J.

TIN FOIL

Datz & Son, A. S., Philadelphia, Pa.
Reynolds Metals Co., New York, N. Y.—173
Schulman Co., Louis, New York, N. Y.

TRACTORS, INDUSTRIAL (Electric)

Atlas Car & Mfg. Co., Cleveland, O.
Automatic Transportation Co., Buffalo, N. Y.
Baker-Raulang Co., Cleveland, O.
Barrett-Cravens Co., Chicago, Ill.
Crescent Truck Co., Lebanon, Pa.
Elwell-Parker Electric Co., The, Cleveland, O.
Hebard & Co., W. F., Chicago, Ill.
Lakewood Eng. Co., Cleveland, O.
Mercury Mfg. Co., Chicago, Ill.
Steubing-Cowan Co., Cincinnati, O.
Wright-Hibbard Industrial Electric Truck Co., Phelps, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

TRUCKS (Hand Lift)

Barrett-Cravens Co., Chicago, Ill.
Lewis-Shephard Co., Boston, Mass.
Plimpton Lift Truck Corp, Stamford, Conn.
Revolvator Co., Jersey City, N. J.
Steubing-Cowan Co., Cincinnati, O.

TUBES (Collapsible)

Aluminum Co. of America, Pittsburgh, Pa.
Art Tube Co., Irvington, N. J.
Atlantic Mfg. Co., Newark, N. J.
Bond Mfg. Corp., Wilmington, Del.
New England Collapsible Tube Co., New York, N. Y.
Peerless Tube Co., Bloomfield, N. J.—189
Pennsylvania Collapsible Tube Co., Williamsport, Pa.
Standard Specialty & Tube Co., New Brighton, Pa.
Sun Tube Corp., Hillside, N. J.
Victor Metal Products Corp., Brooklyn, N. Y.
Wheeling Stamping Co., Wheeling, W. Va.
White Metal Mfg. Co., Hoboken, N. J.
Wirz, Inc., A. H., Chester, Pa.—98–99

TUBES (Mailing)

Cambridge Paper Box Co., Cambridge, Mass.—90
Champion Container Co., Inc., Philadelphia, Pa.
Cleveland Container Co., The, Cleveland, O.
Mason Box Co., The, Attleboro Falls, Mass.—Insert 150–151
National Paper Can Co., Milwaukee, Wis.
Queen City Paper Co., Cincinnati, O.
R. C. Can Company, St. Louis, Mo.—164
Ritchie & Co., W. C., Chicago, Ill.
Seeley Tube and Box Co., Newark, N. J.—178
Sefton National Fibre Can Co., St. Louis, Mo.

WATERPROOF PAPER

Angier Corp., Framingham, Mass.
Edgewater Paper Co., Menasha, Wis.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—116
Rexford Paper Co., Milwaukee, Wis.
Sisalkraft Co., Chicago, Ill.

WINDOW DISPLAY

See Lithographers, Folding Cartons, Printed Papers

WIRE (Reinforcement)

Acme Steel Co., Chicago, Ill.—80
Chicago Steel and Wire Co., Chicago, Ill.
Gerrard Co., Inc., Chicago, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.
Seneca Wire & Mfg. Co., Fostoria, O.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.—179

WIRE, STAPLING

Acme Steel Co., Chicago, Ill.—80
Bliss Co., Inc., H. R., Niagara Falls, N. Y.—125–140
Chicago Steel & Wire Co., Chicago, Ill.
Ideal Stitcher & Mfg. Co., Racine, Wis.—Insert 176–177
Latham Machinery Co., Chicago, Ill.
New Jersey Wire Stitching Machine Co., Camden, N. J.
Prentiss Co., Geo. H., Holyoke, Mass.
Saranac Machine Co., Benton Harbor, Mich.—171

WRAPPERS, BOTTLE (Corrugated)

Consolidated Paper Co., Monroe, Mich.—141
Container Corp. of America, Chicago, Ill.—96
Gair Co., Robert, New York, N. Y.
Gaylord Co., Robert, St. Louis, Mo.
Hinde & Dauch Paper Co., Sandusky, O.—114
Owens-Illinois Glass Co., Toledo, O.
River Raisin Paper Co., Monroe, Mich.

WRAPPERS, FOIL

Aluminum Co. of America, Pittsburgh, Pa.
Reynolds Metals Co., Inc., New York, N. Y.—173

WRAPPERS (Printed Glassine)

American Tissue Mills, Holyoke, Mass.
Bendix Paper Co., New York, N. Y.
Bennington Wax Paper Co., Bennington, Vt.
Central Waxed Paper Co., Chicago, Ill.
Deerfield Glassine Co., Monroe Bridge, Mass.—Insert 172–173
Disbrow Mfg. Co., Inc., The, Newark, N. J.
Glassine Bag & Novelty Co., Rhinelander, Wis.
Hamersley Mfg. Co., Garfield, N. J.
Hartford City Paper Co., Hartford City, Ind.
Heywood & Co., R. R., New York, N. Y.
Holyoke Paper Corp., New York, N. Y.—Insert 174–175
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—116
Kehlman Co., L., New York, N. Y.
Lambooy Label & Wrapper Co., Kalamazoo, Mich.
Liebs Co., L. A., New York, N. Y.
Lord Baltimore Press, Baltimore, Md.
Menasha Products Co., Chicago, Ill.
Milwaukee Printing Co., Milwaukee, Wis.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
Otsego Waxed Paper Co., Otsego, Mich.
Package Paper Co., Holyoke, Mass.
Riegel Paper Corp., New York, N. Y.—170
Shellmar Products Co., Chicago, Ill.
Saniwax Paper Co., Kalamazoo, Mich.
Steidinger Press, New York, N. Y.
Westfield River Paper Co., Inc., Russell, Mass.—188

WRAPPERS (Waxed Paper and Parchment)

American Tissue Mills, Holyoke, Mass.
Bennington Wax Paper Co., Bennington, Vt.
Central Waxed Paper Co., Chicago, Ill.
Coated Paper Products Co., Minerva, O.
Continental Paper & Bag Corp., New York, N. Y.
Hamersley Mfg. Co., Garfield, N. J.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—116
Kehlmann Co., L., New York, N. Y.
Marathon Paper Mills, Rothschild, Wis.
Menasha Products Co., Chicago, Ill.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 192–193
Newark Paraffine & Parchment Paper Co., Newark, N. J.—150
Ohio Wax Paper Co., Columbus, O.
Otsego Waxed Paper Co., Otsego, Mich.
Package Paper Co., Holyoke, Mass.
Paterson Parchment Paper Co., Passaic, N. J.
Riegel Paper Corp., New York, N. Y.—170
Robertson Paper Co., Inc., Bellows Falls, Vt.
Shawmut Waxed Paper Co., Holliston, Mass.
Waterproof Paper & Board Co., Cincinnati, O.
West Carrollton Parchment Co., West Carrollton, O.

WRAPPING PAPER

Angier Corp., Framingham, Mass.
Badger State Paper Co., Milwaukee, Wis.
Brown Co., Portland, Me.
Central Paper Co., Menasha, Wis.
Chemical Paper Mfg. Co., Holyoke, Mass.
Continental Paper & Bag Mills, New York, N. Y.
Defiance Paper Co., Niagara Falls, N. Y.
Edgewater Paper Co., Menasha, Wis.
International Paper Company, New York, N. Y.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—116
Kimberly-Clark Corp., Neenah, Wis.—148–149
Mosinee Mills, Chicago, Ill.
Orono Pulp & Paper Co., Bangor, Me.
Paterson Parchment Paper Co., Passaic, N. J.
Pilcher-Hamilton Co., Chicago, Ill.
Rexford Paper Co., Milwaukee, Wis.
Robertson Paper Co., Bellows Falls, Vt.
Safepack Mills, Millis, Mass.
Sisalkraft Co., The, Chicago, Ill.
Union Bag & Paper Corp., New York, N. Y.—180
Union Paper & Twine Co., Cleveland, O.
Waterproof Paper & Board Co., Cincinnati, O.
Weyerhaeuser Forest Products, St. Paul, Minn.

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